21570

Cassette auto radio 22DC 570/00

22DC 670/00

Service
Service
Service

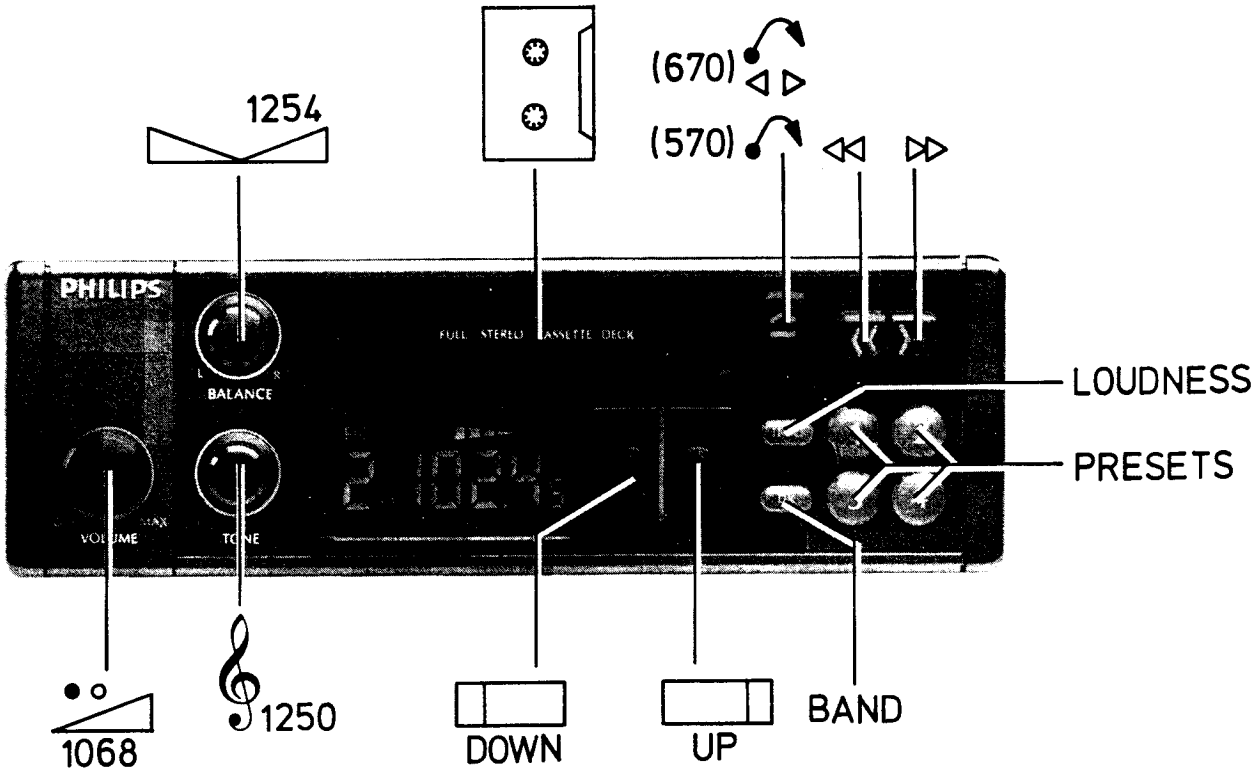
For Service Manuals Contact
MAURITRON TECHNICAL SERVICES
8 Cherry Tree Rd, Chinnor
Oxon OX9 4QY
Tel:- 01844-351694 Fax:- 01844-352554
Email:- enquiries@mauritron.co.uk

+ R570
R670

12171

Service Manual

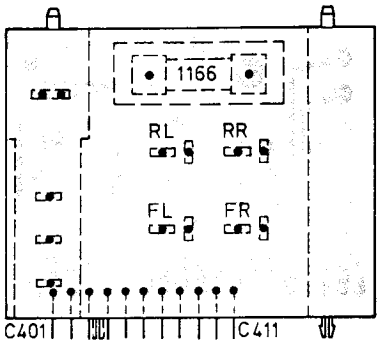
12 V

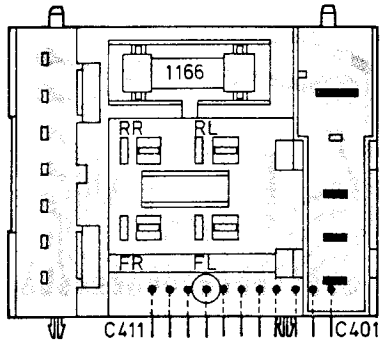


43 029 A12

1053 CONNECTING BLOCK P.B. ASSY

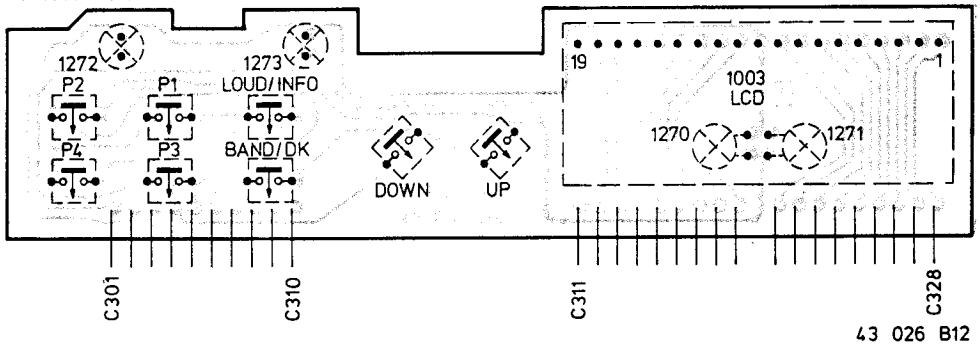
C401 = REMOTE SEARCH
C402 = +12V SWITCHED
C403 = +12V DIRECT
C404 = N.C.
C405 = AUTO.AERIAL
C406 = +FL
C407 = −L
C408 = +RL
C409 = −R
C410 = +FR
C411 = +RR





42 829 B12

FRONT PANEL



43 026 B12

Cassette auto radio 22DC570/60E

22DC670/60/60E

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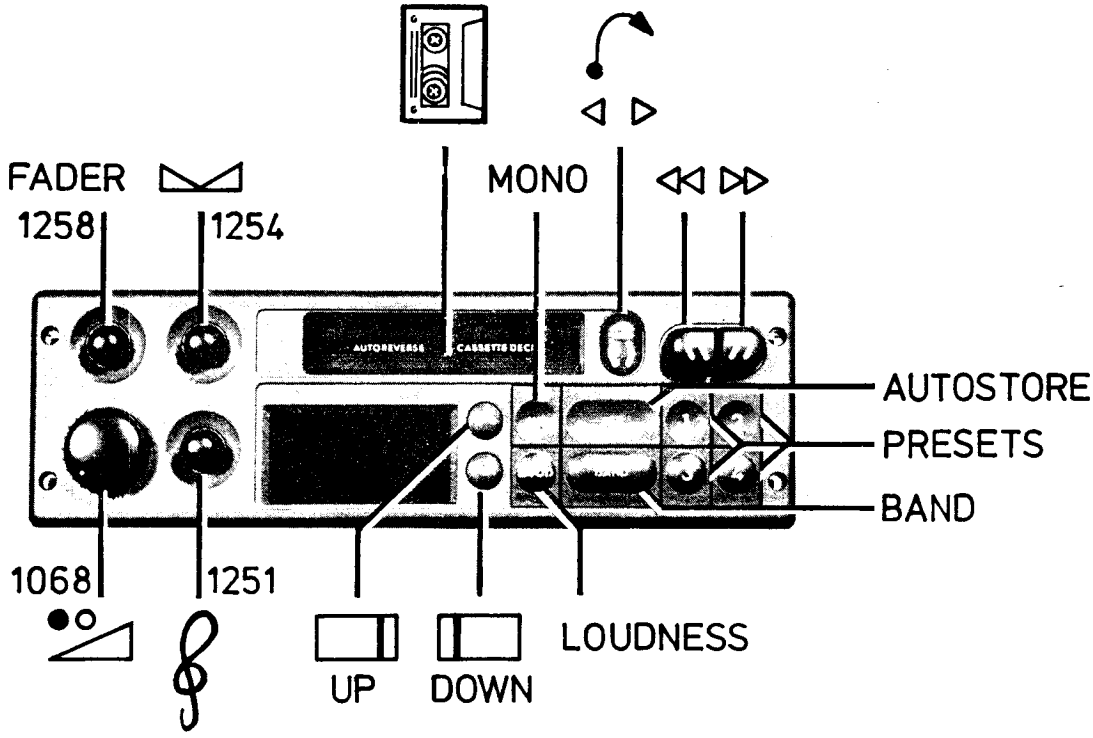
Service Manual

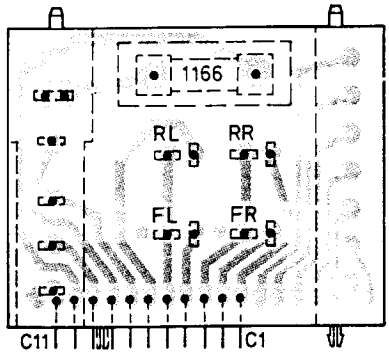
12 V

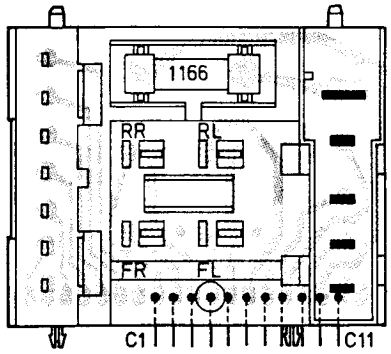


44 254 A11

1053 CONNECTING BLOCK P.B. ASSY

C11 = N.C.
C10 = +12V SWITCHED
C9 = +12V DIRECT
C8 = EXT. ILL.
C7 = AUTO.AERIAL
C4 = +FL
C5 = −L
C6 = +RL
C3 = −R
C2 = +FR
C1 = +RR





44 215 B11

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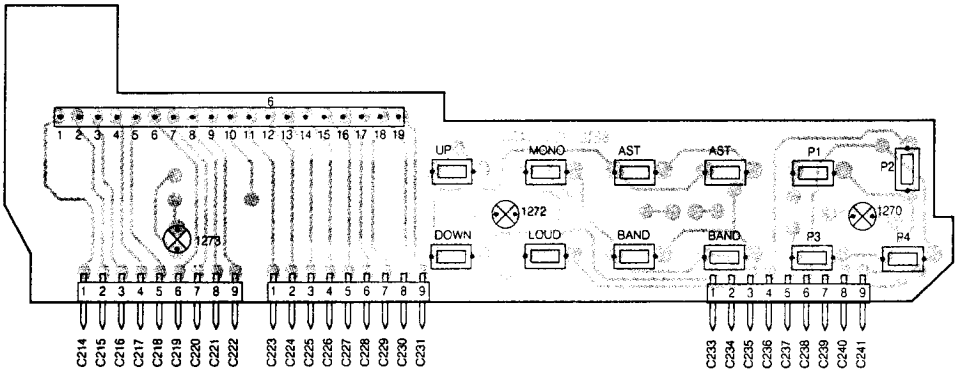


PCB.01231
T27-838

- MISCELLANEOUS -

1055	IAC-Thifi	4822 214 51676
1056	SDK-Thifi	4822 214 51674
1057	STEREO DEC. Thifi	4822 214 51677
1059	Cer.Filter 10.7 MHz	4822 242 71889
1060	Cer.Filter 10.7 MHz	4822 242 71889
1061	Crystal 4 MHz	4822 242 71881
1062	Crystal 4 MHz	4822 242 71882
1064	Cer.Filter 10.7 MHz	4822 242 71883
1065	Cer.Filter 10.7 MHz	4822 242 71883
1068	Potm.Volume 2X50kΩ	4822 102 40082
1166	Fuse 2.5A(T)	4822 253 30026
1250/1251	Potm.Tone 2X100kΩ	4822 102 30462
1254	Potm.Balance 100kΩ	4822 100 20663
1270÷1274	Lamp 14V-40mA	4822 134 40855

⊣⊢

2050	100nF	20%	50V	4822 122 33104
2051	47 nF			4822 122 33211
2055	100nF	20%	50V	4822 122 33104
2056	10 nF			4822 122 31728
2057	47 nF			4822 122 33211
2061	2.2µF		40V	4822 124 20706
2062	150pF			4822 122 33181
2063	270pF			4822 122 33216
2064	220nF	20%	50V	4822 122 32916
2068	220nF	20%	50V	4822 122 32916
2070	390pF	20%	50V	4822 122 33172
2074	220nF	20%	50V	4822 122 32916
2076	220nF	20%	50V	4822 122 32916
2083	27 pF			4822 122 33214
2088	10 pF			4822 122 33212
2089	33 pF	20%	50V	4822 122 33215
2090	270pF	20%	50V	4822 122 33216
2091	270pF	20%	50V	4822 122 33216
2092	10 nF	20%	50V	4822 122 33177
2097	220nF	20%	50V	4822 122 32916
2099	150pF		50V	4822 122 33222
2106	100nF	20%	50V	4822 122 33104
2109	22 pF		50V	4822 122 33213
2110	100nF	20%	50V	4822 122 33104
2114	4.7nF		50V	4822 122 33217
2115	3.3nF		50V	4822 122 33219
2118	2200µF		6.3V	4822 124 41453
2120	10 pF		50V	4822 122 33212
2121	10 pF		50V	4822 122 33212
2122	820pF		50V	4822 122 33218
2123	820pF		50V	4822 122 33218
2125	820pF		50V	4822 122 33218
2126	820pF		50V	4822 122 33218
2132	2.7nF		50V	4822 122 33176
2133	2.7nF		50V	4822 122 33176
2134	220nF	20%	50V	4822 122 32916
2135	220nF	20%	50V	4822 122 32916
2136	100nF	20%	50V	4822 122 33104
2140	220µF		10V	4822 124 22409
2141	5.6nF		50V	4822 122 33221
2142	5.6nF		50V	4822 122 33221
2150	220nF	20%	50V	4822 122 32916
2151	220nF	20%	50V	4822 122 32916
2156	1.8nF		50V	4822 122 33144
2157	1.8nF		50V	4822 122 33144
2158	100nF		50V	4822 122 33209
2162	820pF		50V	4822 122 33218
2164	820pF		50V	4822 122 33218

⊣⊢

2166	100nF	20%	50V	4822 122 33104
2168	100nF	20%	50V	4822 122 33104
2172	100nF	20%	50V	4822 122 33104
2178	2200µF		10V	4822 124 41452
2180	2200µF		10V	4822 124 41452
2186	100nF	20%	50V	4822 122 33104
2187	100nF	20%	50V	4822 122 33104
2192	33 pF		50V	4822 122 33215
2193	33 pF		50V	4822 122 33215
2196	2200µF		16V	4822 124 22412
2201	100pF	20%	50V	4822 122 33104
2204	2.2µF		40V	4822 124 20706
2206	4.7nF		50V	4822 122 33217
2208	4.7nF		50V	4822 122 33217

⊣□⊢

3050	1k	4822 111 91516
3051	330Ω	4822 111 91501
3052	10E	4822 111 91519
3053	10k Trimpotmeter	4822 100 20166
3054	2k7	4822 111 91525
3055	10k Trimpotmeter	4822 100 20166
3056	4k7	4822 111 91532
3057	750E	4822 111 91505
3060	10E	4822 111 91519
3061	3k3	4822 111 91526
3064	39k	4822 111 91528
3065	2k2	4822 111 91522
3067	620k	4822 111 91503
3068	10E	4822 111 91519
3069	3k9	4822 111 91527
3070	8k2	4822 111 91507
3072	22k	4822 111 91523
3073	15k	4822 111 91498
3074	1k	4822 111 91516
3075	10k	4822 111 91517
3076	2k7	4822 111 91525
3077	330E	4822 111 91501
3079	39k	4822 111 91528
3080	39k	4822 111 91528
3082	91E	4822 111 91508
3083	2k2	4822 111 91522
3084	39k	4822 111 91528
3086	560E	4822 111 91533
3087	470E	4822 111 91531
3090	4k7	4822 111 91532
3091	220k	4822 111 91524
3095	1k	4822 111 91516
3096	1k	4822 111 91516
3099	22k	4822 111 91523
3100	220k	4822 111 91524
3104	18k	4822 111 91521
3105	18k	4822 111 91521
3106	1k	4822 111 91516
3107	39k	4822 111 91528
3108	10k	4822 111 91517
3110	470E	4822 111 91531
3111	470E	4822 111 91531
3112	390k	4822 111 91529
3113	390k	4822 111 91529
3116	1M	4822 111 91509

Chips 50 V NP0 S1206

1 pF	5%	4822 122 32479
1,2 pF	5%	4822 122 33013
1,5 pF	5%	4822 122 31792
1,8 pF	5%	4822 122 32087
2,2 pF	5%	4822 122 32425
3,3 pF	5%	4822 122 32079
3,9 pF	5%	4822 122 32081
4,7 pF	5%	4822 122 32082
5,6 pF	5%	4822 122 32506
6,8 pF	5%	4822 122 32507
8,2 pF	5%	4822 122 32083
10 pF	5%	4822 122 31971
12 pF	5%	4822 122 32139
15 pF	5%	4822 122 32504
18 pF	5%	4822 122 31769
22 pF	10%	4822 122 31837
27 pF	5%	4822 122 31966
33 pF	5%	4822 122 31756
39 pF	5%	4822 122 31972
47 pF	5%	4822 122 31772
56 pF	5%	4822 122 31774
68 pF	5%	4822 122 31961
82 pF	10%	4822 122 31839
100 pF	5%	4822 122 31765
120 pF	5%	4822 122 31766
150 pF	5%	4822 122 31767
180 pF	2%	4822 122 31794
220 pF	5%	4822 122 31965
270 pF	5%	4822 122 32142
330 pF	10%	4822 122 31642
390 pF	5%	4822 122 31771
470 pF	5%	4822 122 31727
560 pF	5%	4822 122 31773
680 pF	5%	4822 122 31775
820 pF	5%	4822 122 31974
1 nF	10%	5322 122 31647
1,2 nF	5%	4822 122 31807
1,5 nF	10%	4822 122 31781
1,8 nF	10%	4822 122 32153
2,2 nF	10%	4822 122 31644
2,7 nF	10%	4822 122 31783
3,3 nF	10%	4822 122 31969
3,9 nF	10%	4822 122 32566
4,7 nF	10%	4822 122 31784
5,6 nF	10%	4822 122 31916
6,8 nF	10%	4822 122 31976
10 nF	10%	4822 122 31728
12 nF	10%	5322 122 31648
15 nF	10%	4822 122 31782
18 nF	10%	4822 122 31759
22 nF	10%	4822 122 31797
27 nF	10%	4822 122 32541
33 nF	10%	4822 122 31981
47 nF	10%	4822 122 32542
56 nF	10%	4822 122 32183
100 nF	10%	4822 122 31947
180 nF	10%	4822 122 32915
220 nF	20%	4822 122 32715

Chips 0,125 W S1206 NP0

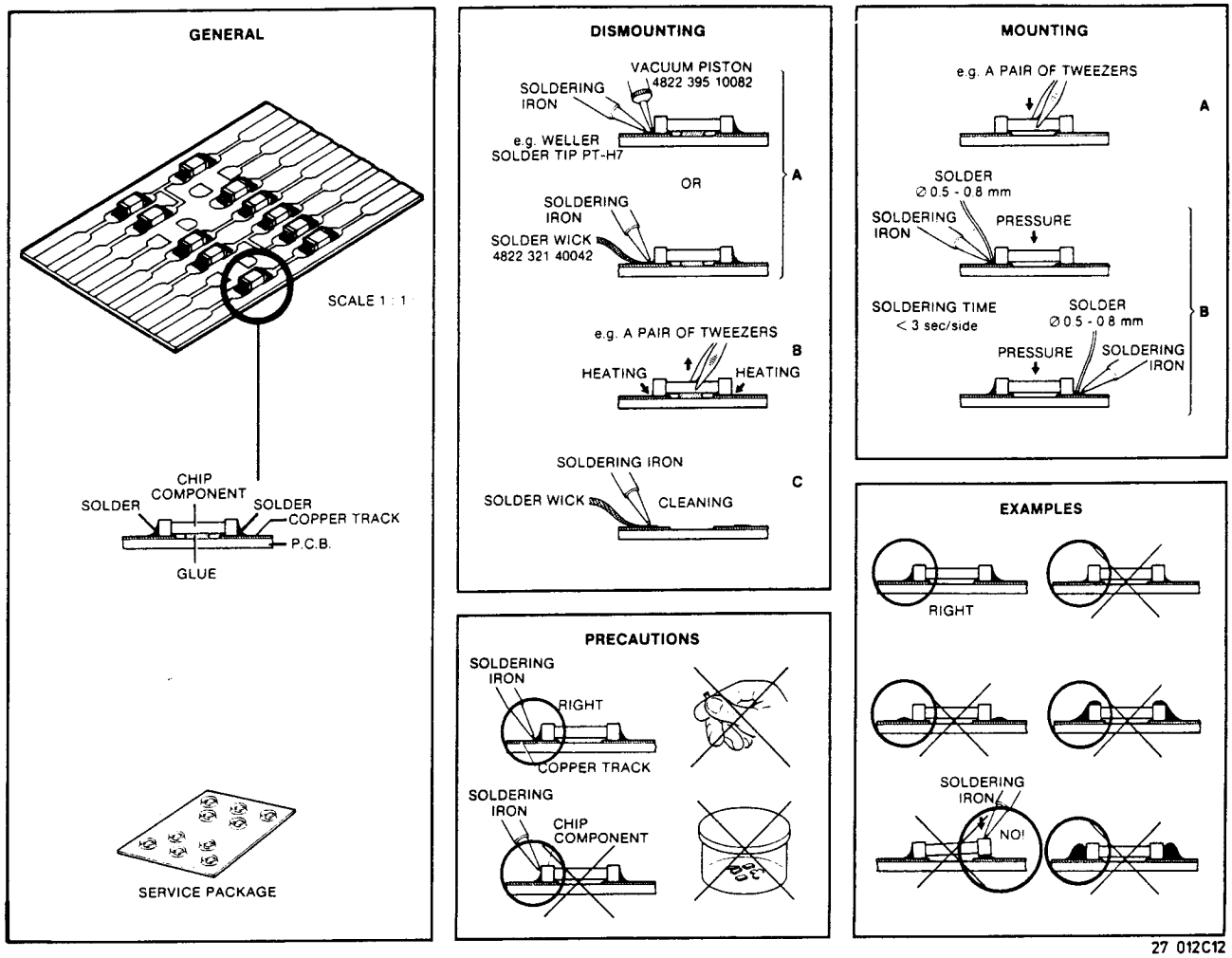
0 E	jumper	4822 111 90163
1 E	5%	4822 111 90184
1,1 E	5%	4822 111 90377
1,2 E	5%	4822 111 90378
1,3 E	5%	4822 111 90379
1,5 E	5%	4822 111 90381
1,6 E	5%	4822 111 90382
1,8 E	5%	4822 111 90383
2 E	5%	4822 111 90384
2,2 E	5%	5322 111 90104
2,4 E	5%	4822 111 90385
2,7 E	5%	4822 111 90386
3 E	5%	4822 111 90387
3,3 E	5%	4822 111 90388
3,6 E	5%	4822 111 90389

Chips 0,125 W S1206

4,7 E	5%	5322 111 90376
5,1 E	5%	4822 111 90393
5,6 E	5%	4822 111 90394
6,2 E	5%	4822 111 90395
6,8 E	5%	4822 111 90254
7,5 E	5%	4822 111 90396
8,2 E	5%	4822 111 90397
9,1 E	5%	4822 111 90398
10 E	2%	5322 111 90095
11 E	2%	4822 111 90338
12 E	2%	4822 111 90341
13 E	2%	4822 111 90343
15 E	2%	4822 111 90344
16 E	2%	4822 111 90347
18 E	2%	5322 111 90139
20 E	2%	4822 111 90352
22 E	2%	4822 111 90186
24 E	2%	4822 111 90355
27 E	2%	5322 111 90105
30 E	2%	4822 111 90356
33 E	2%	4822 111 90357
36 E	2%	4822 111 90359
39 E	2%	4822 111 90361
43 E	2%	5322 116 90125
47 E	2%	4822 111 90217
51 E	2%	4822 111 90365
56 E	2%	4822 111 90239
62 E	2%	4822 111 90367
68 E	2%	4822 111 90203
75 E	2%	4822 111 90371
82 E	2%	4822 111 90124
91 E	2%	4822 111 90375
100 E	2%	5322 111 90091
110 E	2%	4822 111 90335
120 E	2%	4822 111 90339
130 E	2%	4822 111 90164
150 E	2%	5322 111 90098
160 E	2%	4822 111 90345
180 E	2%	5322 111 90242
200 E	2%	4822 111 90348
220 E	2%	4822 111 90178
240 E	2%	4822 111 90353
270 E	2%	4822 111 90154
300 E	2%	4822 111 90156
330 E	2%	5322 111 90106
360 E	1%	4822 111 90288
360 E	2%	4822 111 90358
390 E	2%	5322 111 90138
430 E	2%	4822 111 90362
470 E	2%	5322 111 90109
510 E	2%	4822 111 90245
560 E	2%	5322 111 90113
620 E	2%	4822 111 90366
680 E	2%	4822 111 90162
750 E	2%	5322 111 90306
820 E	2%	4822 111 90171
910 E	2%	4822 111 90372
1 k	2%	5322 111 90092
1,1 k	2%	4822 111 90336
1,2 k	2%	5322 111 90096
1,3 k	2%	4822 111 90244
1,5 k	2%	4822 111 90151
1,6 k	2%	5322 111 90265
1,8 k	2%	5322 111 90101
2 k	2%	4822 111 90165
2,2 k	2%	4822 111 90248
2,4 k	2%	4822 111 90289
2,7 k	2%	4822 111 90569
3 k	2%	4822 111 90198
3,3 k	2%	4822 111 90157
3,6 k	2%	5322 111 90107
3,9 k	2%	4822 111 90571
4,3 k	2%	4822 111 90167
4,7 k	2%	5322 111 90111
5,1 k	2%	5322 111 90268
5,6 k	2%	4822 111 90572

Chips 0,125 W S1206

6,8 k	2%	4822 111 90544
7,5 k	2%	4822 111 90276
8,2 k	2%	5322 111 90118
9,1 k	2%	4822 111 90373
10 k	2%	4822 111 90249
11 k	2%	4822 111 90337
12 k	2%	4822 111 90253
13 k	2%	4822 111 90509
15 k	2%	4822 111 90196
16 k	2%	4822 111 90346
18 k	2%	4822 111 90238
20 k	2%	4822 111 90349
22 k	2%	4822 111 90251
24 k	2%	4822 111 90512
27 k	2%	4822 111 90542
30 k	2%	4822 111 90216
33 k	2%	5322 111 90267
36 k	2%	4822 111 90514
39 k	2%	5322 111 90108
43 k	2%	4822 111 90363
47 k	2%	4822 111 90543
51 k	2%	5322 111 90274
56 k	2%	4822 111 90573
62 k	2%	5322 111 90275
68 k	2%	4822 111 90202
75 k	2%	4822 111 90574
82 k	2%	4822 111 90575
91 k	2%	5322 111 90277
100 k	2%	4822 111 90214
110 k	2%	5322 111 90269
120 k	2%	4822 111 90568
130 k	2%	4822 111 90511
150 k	2%	5322 111 90099
160 k	2%	5322 111 90264
180 k	2%	4822 111 90565
200 k	2%	4822 111 90351
220 k	2%	4822 111 90197
240 k	2%	4822 111 90215
270 k	2%	4822 111 90302
300 k	2%	5322 111 90266
330 k	2%	4822 111 90513
360 k	2%	4822 111 90515
390 k	2%	4822 111 90182
430 k	2%	4822 111 90168
470 k	2%	4822 111 90161
510 k	2%	4822 111 90364
560 k	2%	4822 111 90169
620 k	2%	4822 111 90213
680 k	2%	4822 111 90368
750 k	2%	4822 111 90369
820 k	2%	4822 111 90205
910 k	2%	4822 111 90374
1 M	2%	4822 111 90252
1,1 M	5%	4822 111 90408
1,2 M	5%	4822 111 90409
1,3 M	5%	4822 111 90411
1,5 M	5%	4822 111 90412
1,6 M	5%	4822 111 90413
1,8 M	5%	4822 111 90414
2 M	5%	4822 111 90415
2,2 M	5%	4822 111 90185
2,4 M	5%	4822 111 90416
2,7 M	5%	4822 111 90417
3 M	5%	4822 111 90418
3,3 M	5%	4822 111 90191
3,6 M	5%	4822 111 90419
3,9 M	5%	4822 111 90421
4,3 M	5%	4822 111 90422
4,7 M	5%	4822 111 90423
5,1 M	5%	4822 111 90424
5,6 M	5%	4822 111 90425
6,2 M	5%	4822 111 90426
6,8 M	5%	4822 111 90235
7,5 M	5%	4822 111 90427
8,2 M	5%	4822 111 90237
9,1 M	5%	4822 111 90428



27 012C12

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Carbon film 0.2 W	70°C	5%	
Carbon film 0.33 W	70°C	5%	
Metal film 0.33 W	70°C	5%	
Carbon film 0.5 W	70°C	5%	
Carbon film 0.67 W	70°C	5%	
Carbon film 1.15 W	70°C	5%	

© Chip component

Ceramic plate Tuning ⩽ 120 pF NP.0		2%
Others		−20/+80%
Polyester flat foil		10%
Metalized polyester flat film		10%
Polyester flat foil small size (Mylar)		10%
Polysterene film/foil		1%
Tubular ceramic		
Miniature single		
Subminiature tantalum		± 20%

*a	= 2,5 V
b	= 4 V
c	= 6,3 V
d	= 10 V
e	= 16 V
f	= 25 V
g	= 40 V
h	= 63 V
j	= 100 V
l	= 125 V
m	= 150 V
n	= 160 V
q	= 200 V
r	= 250 V
s	= 300 V
t	= 350 V
u	= 400 V
v	= 500 V
w	= 630 V
x	= 1000 V
A	= 1,6 V
B	= 6 V
C	= 12 V
D	= 15 V
E	= 20 V
F	= 35 V
G	= 50 V
H	= 75 V
I	= 80 V

27 037A/C

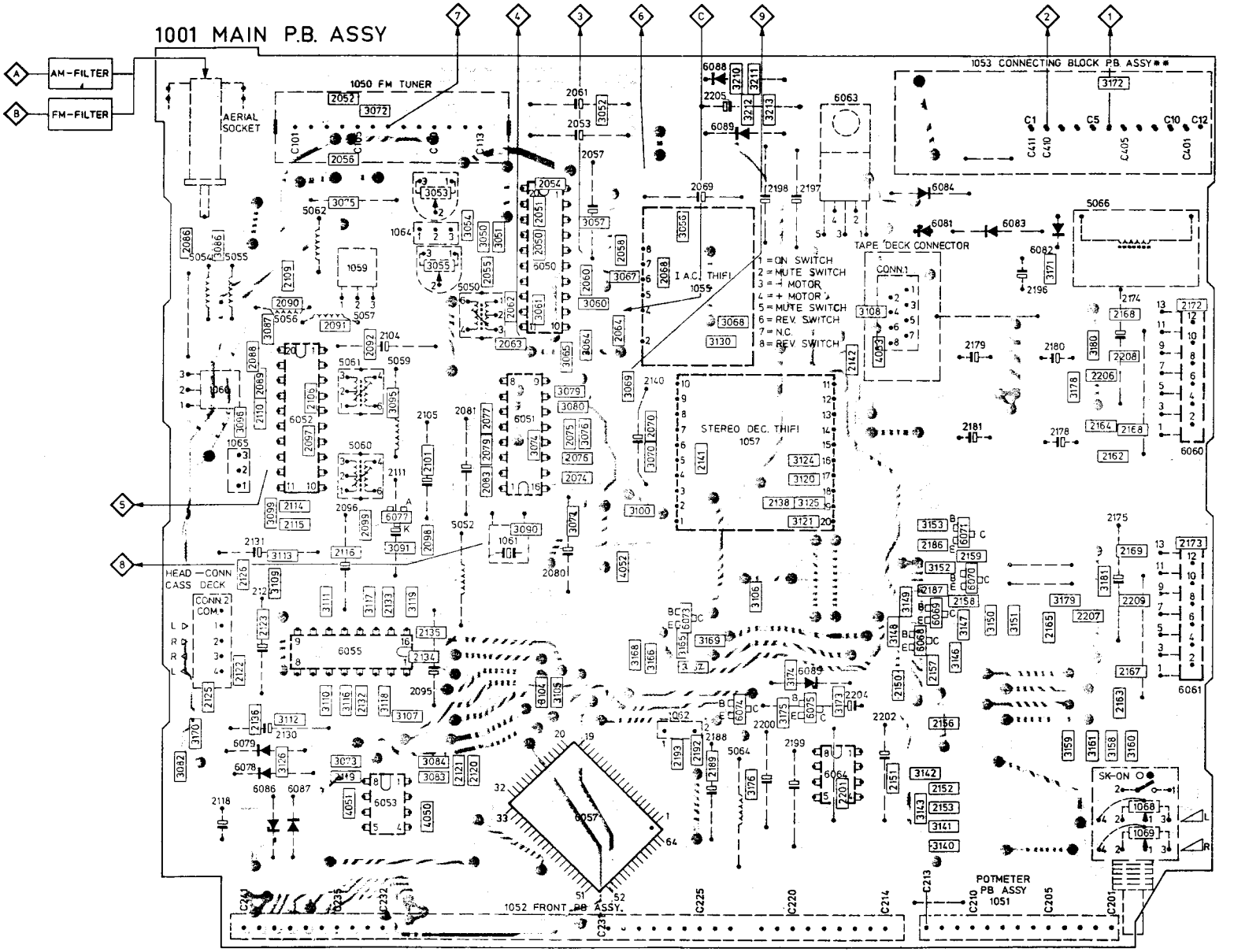
3117	1M	4822 111 91509
3118	56k	4822 111 91535
3119	56k	4822 111 91535
3120	56k	4822 111 91535
3121	56k	4822 111 91535
3124	2M2	4822 111 91511
3125	2M2	4822 111 91511
3126	39k	4822 111 91528
3130	390k	4822 111 91502
3140	2K7	4822 111 91525
3141	2k7	4822 111 91525
3142	10k	4822 111 91517
3143	10k	4822 111 91517
3146	15k	4822 111 91498
3147	15k	4822 111 91498
3148	100k	4822 111 91518
3149	100k	4822 111 91518
3150	3k3	4822 111 91526
3151	3k3	4822 111 91526
3152	100k	4822 111 91518
3153	100k	4822 111 91518
3158	5k6	4822 111 91534
3159	5k6	4822 111 91534
3160	5k6	4822 111 91534
3161	5k6	4822 111 91534
3165	100k	4822 111 91518
3166	100k	4822 111 91518
3167	100k	4822 111 91518
3168	100k	4822 111 91518
3169	100k	4822 111 91518
3170	75E	4822 111 91506
3171	270E	4822 111 91499
3172	270E	4822 111 91499
3173	100k	4822 111 91518
3174	100k	4822 111 91518
3175	10k	4822 111 91517
3176	10k	4822 111 91517
3177	680E	4822 111 91504
3178	4E7	4822 116 80464
3180	4E7	4822 116 80464
3204	22k	4822 111 91523
4050	0E	4822 111 91536
4051	0E	4822 111 91536

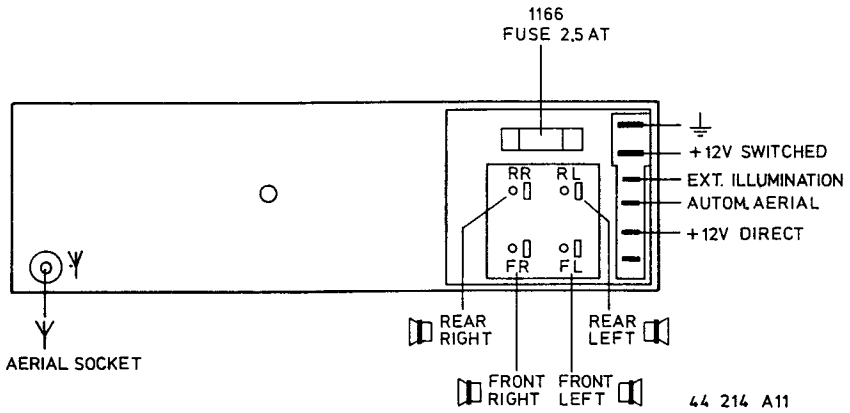
5050	4822 152 20684
5052	4822 157 50975
5054	4822 152 20677
5055	4822 152 20677
5056	4822 152 20677
5057	4822 152 20679
5059	4822 157 50975
5060	4822 152 20682
5061	4822 152 20683
5062	4822 152 20678
5064	4822 157 50975
5066	4822 152 20681

BAX14	4822 130 34193
BAX18	4822 130 34121
BBY40	5322 130 80119
BZX79/B5V1	4822 130 34233
BZX79/B5V6	4822 130 34173
BZX79/C4V7	4822 130 34174
1N4002	5322 130 30684
1N4148	4822 130 30621

BC847B Chip Transistor	4822 130 60511

6050	TEA6100	4822 209 72251
6051	TSA6057	4822 209 72248
6052	TEA6200	4822 209 72247
6053	M8571B6	4822 209 11506
6055	TA7705P	4822 209 82116
6057	TMP47C421AF	4822 209 72254
6060	TDA1518Q	4822 209 72249
6063	L4918	4822 209 72253
6064	L4904	4822 209 72252


1001 MAIN P.B. ASSY
AM-FILTER
FM-FILTER
AERIAL SOCKET
1050 FM TUNER
1053 CONNECTING BLOCK PB ASSY**
TAPE DECK CONNECTOR
I.A.C. THIFI
STEREO DEC. THIFI
1057
1 = ON SWITCH
2 = MUTE SWITCH
3 = - MOTOR
4 = + MOTOR
5 = MUTE SWITCH
6 = REV. SWITCH
7 = N.C.
8 = REV. SWITCH
HEAD — CONN CASS DECK
CONN 2
COM.
SK-ON
POTMETER PB ASSY 1051
1052 FRONT PB ASSY
44 226 D11
2... CHIP CAPACITOR
3 CHIP RESISTOR
4 CHIP JUMPER
6 CHIP TRANSISTER
* ONLY FOR SETS WITH SDK.
** C1 = +RRE
C2 = +RFR
C3 = -RFR/LFR
C4 = +LFR
C5 = -RRE/LRE
C6 = +LRE
C7 = AUT. AERIAL
C8 = EXT. ILLUMINATION
C9 = +14.4V DIRECT
C10 = +14.4V
C11 = N.C.



TECHNICAL DATA

General

Power supply	: 14.4V DC
Dimensions(wxhxd)	: 180x51x150 mm

Radio

LW	: 144-288 kHz
MW	: 522-1611 kHz
FM	: 87.5-108 MHz
IF-AM	: 10.7 MHz
IF-FM	: 10.7 MHz
Sensitivity 26 dB S/R	: 160 µV (LW)
	: 110 µV (MW)
	: 4 µV (FM)
Limitation α-3dB	: 15 µV
10 dB crosstalk	: 150 µV

Cassette player

Number of tracks	: 2x2
Tape speed	: 4.76 cm/sec
Wow & Flutter	: ⩾ 0.35 %
Crosstalk	: ⩽ 30 dB

Amplifier

Output power (D ⩽ 10%)	: 4x5.2W ± 1 dB/4Ω
Loudness	: 7 dB at 100 Hz
	6 dB at 10 kHz
Tone control	: -9 dB at 100 Hz
	: -14dB at 10 kHz

SERVICING HINTS

SERVICE TEST PROGRAMME

The µC test programme can be called without first entering the security code.

µC test

This test is called by turning the set on **while** keeping the **P1** and **P2** keys depressed.
Besides the RAM, a great number of µC instructions are tested. If no faults occur, a special pattern will be displayed. (See fig. 1f)
The test can be stopped by turning the set off.

Display test

The display test is called by turning the set on **while** keeping the **P1** and **P3** keys depressed.
A number of easily recognizable patterns are then displayed in succession. (See figs. 1a to 1h)
If you want to make one of the patterns visible for a longer time, you only have to keep the P1 key pressed for the required time.

SECURITY CODE

General

To reduce the risk of theft, this car radio has a built-in electronic lock. The security code has been entered in the factory and cannot be changed by the customer.
The security code consists of four figures varying between "0000" and "9999". The figures are selected by pressing the UP and DOWN keys and are entered by pressing the P1 key. If you enter a wrong code, you will hear an error bleep and after 1 minute you will be given a new opportunity to enter the right code. Each time a wrong code is entered, the waiting time is doubled, so 1, 2, 4, 8 etc. with a maximum of 32 minutes.

Note: If the set is presented for repair with the security code switched on, and the customer has not stated the right code, the set will not be able to function.
Replacing the eeprom by a "non-coded" eeprom and/or replacing the microprocessor will not help in that case.

For Service Manuals **Contact**
MAURITRON TECHNICAL SERVICES
8 Cherry Tree Rd, Chinnor
Oxon OX9 4QY
Tel:- 01844-351694 Fax:- 01844-352554
Email:- enquiries@mauritron.co.uk

Working

ACTIVATING THE SECURITY CODE

Proceed as follows:

Switch the set on **while** pressing the **UP** key.

Now you hear a two-tone beep and the protection is activated.

The car radio will signal that the code has been activated by briefly showing in the display the character '-C-' at the moment of switching on the radio.

ENTRY OF THE CODE

Example: Suppose the code is 4567.

Action	Display shows	Note
- Switch on	-C-	
- Press P1	-	
- Select UP/DOWN "4"	4	first figure
- Press P1	4-	
- Select UP/DOWN "5"	45	second figure
- Press P1	45-	
- Select UP/DOWN "6"	456	third figure
- Press P1	456-	
- Select UP/DOWN "7"	4567	fourth figure
- Press P1	....	confirmation tone

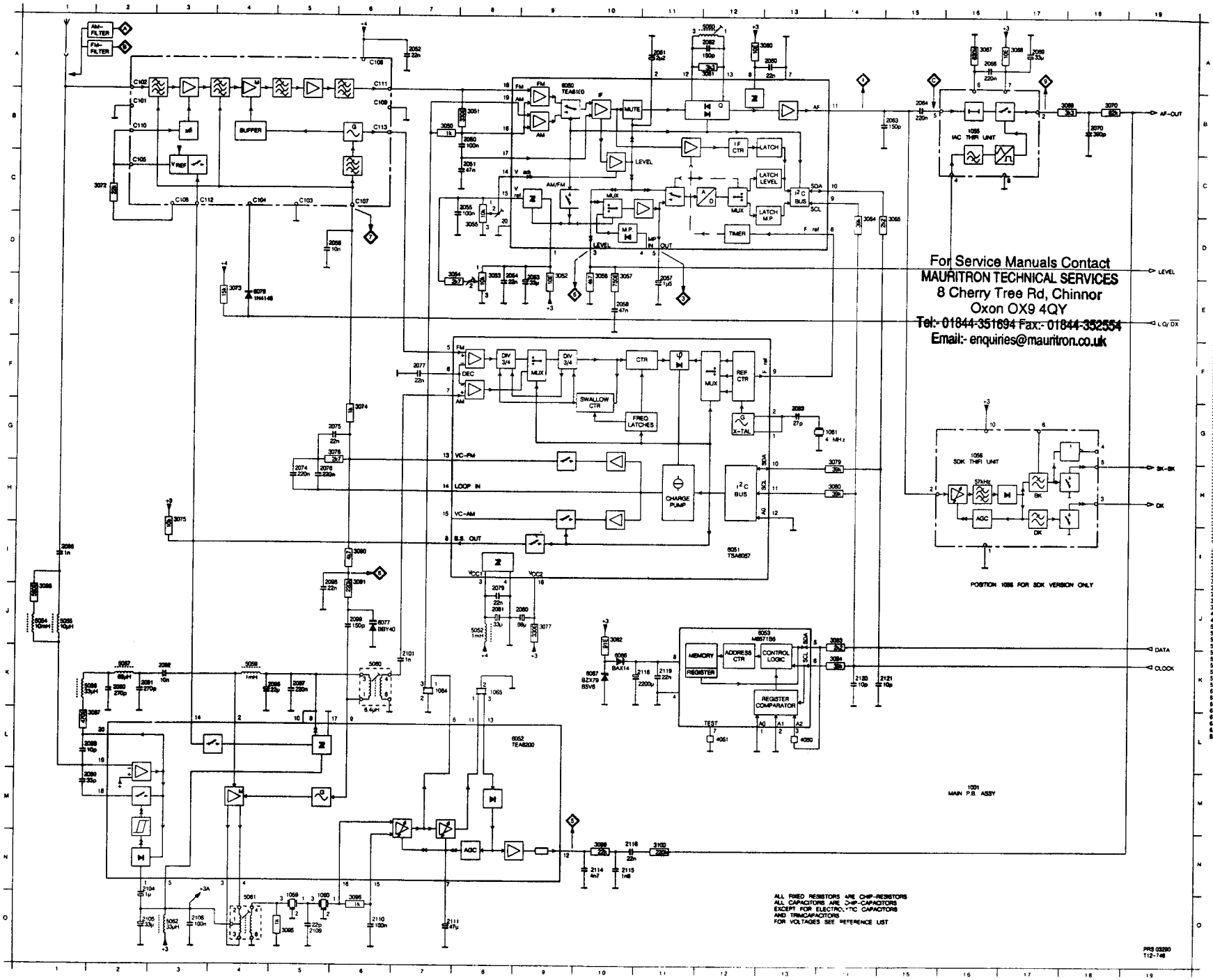
The radio is now on and you can operate the cassette player.
Now that the security code is active, the code should be entered again each time the supply voltage has been interrupted.
To indicate that the security code is activated, the display briefly shows the character "C" each time the set is turned on.

SWITCHING THE CODE OFF

Switch the set on **while** pressing the **UP** key. The display shows the indication "-C-". Enter the right code in the way described above. Two two-tone squeaks confirm that the security code is switched off.

ESD

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD).
Careless handling during repair can reduce service life drastically. When repairing, make sure that you are connected to the same potential as the mass of the set via a wrist wrap with resistance.
Keep components and tools also at this potential.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Oxon OX9 4QY
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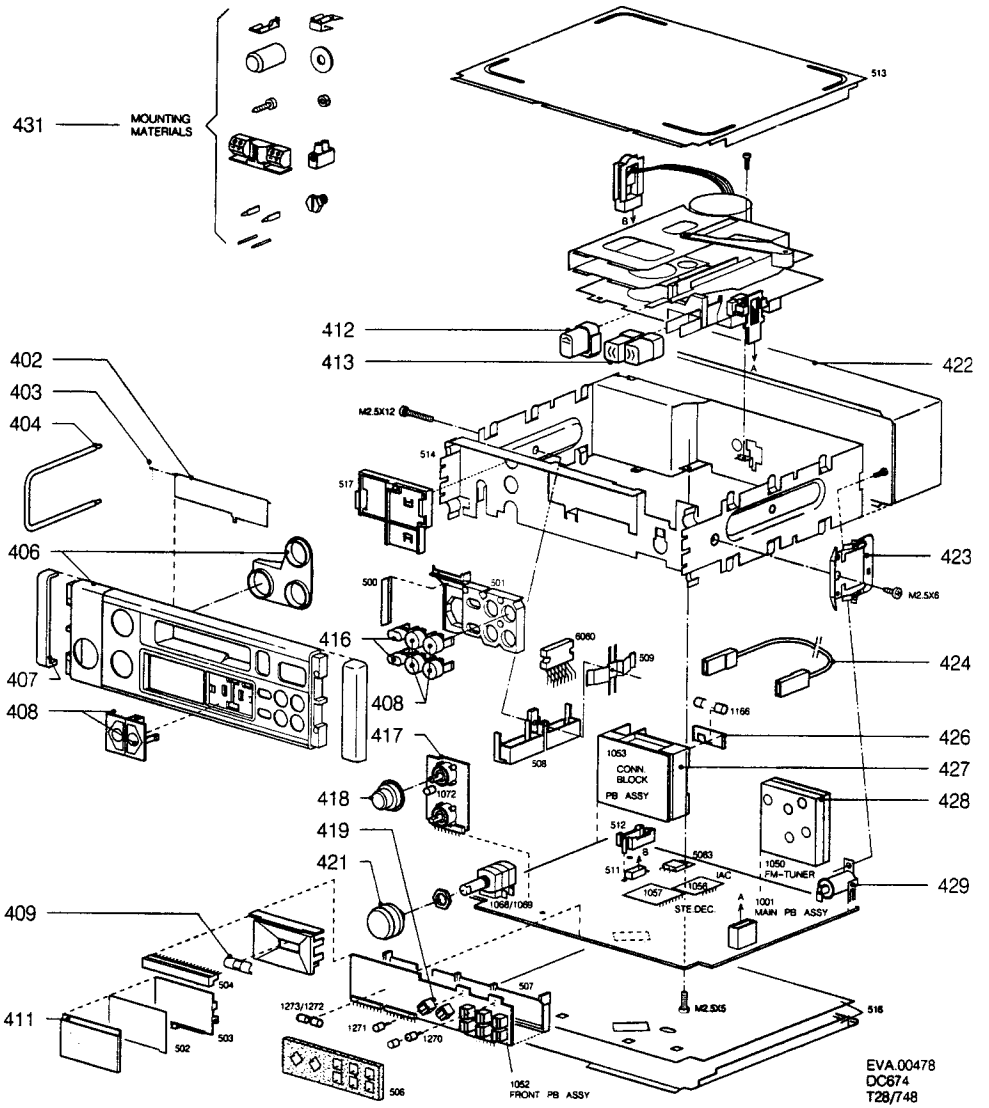
Email:- enquiries@mauritron.co.uk
TEA6100
TEA6057
TEA6200
M68T186
AF-OUT
LEVEL
LO/DX
SK-SK
DK
DATA
CLOCK
MEMORY REGISTER
ADDRESS CTR
CONTROL LOGIC
REGISTER COMPARATOR
I²C BUS
CHARGE PUMP
FREQ LATCHES
SWALLOW CTR
REF CTR
X-TAL
4 MHz
57kHz
POSITION 1056 FOR SDK VERSION ONLY
1001
MAIN P.B. ASSY
ALL FIXED RESISTORS ARE CHIP-RESISTORS
ALL CAPACITORS ARE CHIP-CAPACITORS
EXCEPT FOR ELECTROLYTIC CAPACITORS
AND TRIMCAPACITORS
FOR VOLTAGES SEE REFERENCE LIST
PRS 03290
112-748

For checking and adjusting see general procedures

Check	SK				Setting of controls		
FM-Mute	FM	93 MHz, 1 mV	B			①0dB (775 mV)	
		no signal				-30dB≤①≤-40dB	
26dB-SNR	FM	93 MHz, 4 µV △f = 22.5 kHz f mod = 1 kHz	B			① 0dB (775 mV)	
		93MHz, 4µV without mod.				① ≥ 26dB	
	MW	990 kHz, 110 µV 1 kHz, 30% AM	A			① 0dB (775 mV)	
		990kHz, 110 µV without mod.				① ≥ 26dB	
Demodulated FM-levels	FM	93MHz, 1mV △f = 22.5 kHz f mod = 1 kHz	B			④ 200 mV ±1dB	
		93 MHz, 1 mV △f = 6.75 kHz f mod. = 1 kHz				④ 50 mV ± 1dB	
Demodulated FM level	FM	93 MHz, 1 mV △f = 3.75 kHz f mod. = 57 kHz	B			④ 20 mV ± 1 dB	
Demodulated AM-level	MW	990 kHz, 1 mV 1kHz, 30% AM	A			⑤ 350 mV ± 1dB	
Cross talk	FM	93 MHz, 1 mV stereo signal	B			L ① 0dB (775 mV) R ②	
		93 MHz, 1 mV stereo-R				R ② - L ① ≥ 21dB	
SDS/10dB Cross talk	FM	93 MHz, 1 mV stereo signal	B			L ① 0dB (775 mV) R ②	
		93 MHz, 150 µV stereo-R				R ② - L ① = 10dB	
Search level FM	FM	93 MHz, 25µV	B			⑥ 2 V-DC	
Search level AM	MW	990 kHz, 70µV	A			③ 1.75 V-DC	
VC-FM	FM			87.5 MHz		⑦ ≥ 1.0 V-DC	
				108 MHz		⑦ ≤ 6.0 V-DC	
VC-AM	LW			144 kHz		⑧ ≥ 0.8 V-DC	
	MW			1611 kHz		⑧ ≤ 6.0 V-DC	
I.A.C.	FM	τ = 10 µsec T = 300 µsec Vp = 60 mV	C				⑨ 25-50 µs



402	4822 443 62358	(DC570, 574)	409	4822 462 71496		421	4822 413 31508	
402	4822 443 62271	(DC670, 674)	411	4822 130 90499		422	4822 443 30463	
403	4822 492 42231		412	4822 410 26314	(DC570, 574)	423	4822 492 63822	
404	4822 403 53282		412	4822 410 26315	(DC670, 674)	424	4822 321 21135	
406	4822 423 50891	(DC570)	413	4822 410 26316		426	4822 256 30338	
406*	4822 423 50892	(DC574)	416	4822 410 26333	(DC570, 670)	427	4822 267 40763	
406*	4822 423 50893	(DC670)	416	4822 410 26329	(DC574, 674)	428	4822 210 10305	
406*	4822 423 50894	(DC674)	417	4822 214 51694		429	4822 267 30883	
407	4822 443 62269		418	4822 413 31509		431	4822 310 10079	
408	4822 410 26328		419	4822 276 12296		* Incl. items 402, 403, 407		

V any position
V FM position FM
V AM position AM
V > position play forward
V < position play reverse
V eject position eject

50 FM TUNER

01= GND. C107= VC-FM MP-7
02= – C108= 1.4V
03= GND. C109= GND.
04= 0.0V C110= 1.7V
05= 1.7V C111= 2.9V
06= 8.5V C112= 0.2V
C113= 1.8V

55 IAC-THIFI

= N.C 5 = 4.3V
= 2.5V MP-9 6 = 8.1V
= N.C 7 = 8.4V
= 4.3V signal 8 = GND.
0.0V no signal

57 ST.DEC.THIFI

= 5.0V mono 11= 5.0V mono
0.2V stereo 0.0V stereo
= N.C 12= N.C
= 3.5V 13= 5.0V muted
0.0V signal
= 2.5V 14= 0.0V muted
5.0V signal
= 3.5V 15= 3.5V
= GND. 16= 3.5V
= N.C 17= 3.5V
= 7.3V 18= 3.5V
= N.C 19= 3.5V
= 4.3V signal 20= 3.5V
0.0V no signal

50 TEA6100

= 8.4V 11= 4.2V MP-4
= 0.8V 12= 4.6V
= 4.3V signal 13= 4.6V
0.0V no signal
= N.C 14= 2.5V
= MP-3 15= 4.4V
= 40 kHz 16= 2.9V
= GND. 17= 2.9V
= 8.4V 18= 2.9V
= 4.8V(SDA) 19= 2.9V
= 4.8V(SCL) 20= GND.

51 TSA6057

= 4 MHz 9 = 40 kHz ± 0.6Hz
= 4 MHz 10= 4.8V(SDA)
= 4.7V 11= 4.8V(SCL)
= GND. 12= GND.
= 1.8V 13= VC-FM 1.3V-5.8V
(87.5MHz-108MHz)
= 1.8V 14= 2.0V
= 1.8V 15= N.C
= ≤0.8V FM 16= 8.3V
8.3V AM

6052 TEA6200

1 = 6.8V AM 11= 6.8V AM
2 = 4.0V AM 12= 1.3V MP-5
3 = 8.5V 13= 4.8V AM
4 = 8.5V 14= 8.5V AM
5 = 8.5V 15= 4.8V AM
6 = 8.5V 16= 4.8V AM
7 = 0.7V 17= GND.
8 = 4.0V AM 18= 1.0V AM
9 = 4.0V AM 19= 1.3V AM
10= 4.0V AM 20= 3.3V AM

6053 M8571B6

1 = GND. 5 = 4.8V(SDA)
2 = GND. 6 = 4.8V(SCL)
3 = GND. 7 = GND.
4 = GND. 8 = 5.0V

6055 TA7705P

1 = 8.5V 9 = 2.9V
2 = 3.3V; 0.0V eject 10= N.C
3 = 0.0V >, eject 11= 2.9V
5.0V <
4 = N.C 12= 2.9V
5 = 2.9V 13= 2.9V
6 = 2.9V 14= N.C
7 = 2.9V 15= N.C
8 = GND. 16= 3.3V

6060/6061 TDA1518Q

1 = 2.2V 8 = 14.4V
2 = 2.2V 9 = 6.6V
3 = GND. 10= 14.4V
4 = 2.2V 11= 14.4V
5 = 6.6V 12= 6.6V
6 = 14.4V 13= 2.2V
7 = GND.

6063 L4918

1 = 14.4V
2 = 2.6V
3 = GND.
4 = GND.
5 = 8.5V

6064 L4904

1 = 12.7V 5 = N.C
2 = 8.5V 6 = 4.2V
3 = 5.6V 7 = 5.0V
4 = GND. 8 = 5.0V

6068/6069

e = 0.1V loudn. on
b = 0.7V loudn. on
c = 0.1V loudn. on

6070/6071

e = GND.
b = 0.6V loudn. off
0.0V loudn. on
c = 0.0V loudn. off
0.1V loudn. on

6073

e = GND.
b = 0.6V loudn. off
0.0V loudn. on
c = 0.0V loudn. off
3.3V loudn. on

6074

e = GND.
b = 0.0V
c = 5.0V

6075

e = GND.
b = 0.7V
c = 0.0V

For adjusting and checking see general procedures

Adjustment	SK	⏦	◇	▭	∠	📻
Qudrature detector	FM	93 MHz, 10 µV	Ⓑ	▭	5050	via 100 kΩ: 11-15 IC6050 ≤ 100 mV DC
α-3dB	FM	93 MHz, 1 mV △f = 22.5 kHz f mod = 1 kHz	Ⓑ	▭	◿	① 0dB (775 mV)
		93 MHz, 15 µV △f = 22.5 kHz f mod = 1 kHz	Ⓑ	▭	3055	① -3dB
AM-search level	MW	990 kHz, 70 µV	Ⓐ	▭	3053	③ 1.75 V DC

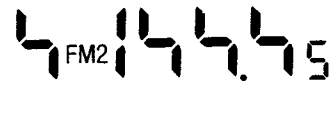
a.

b.

c.

d.

e.



f.

g.

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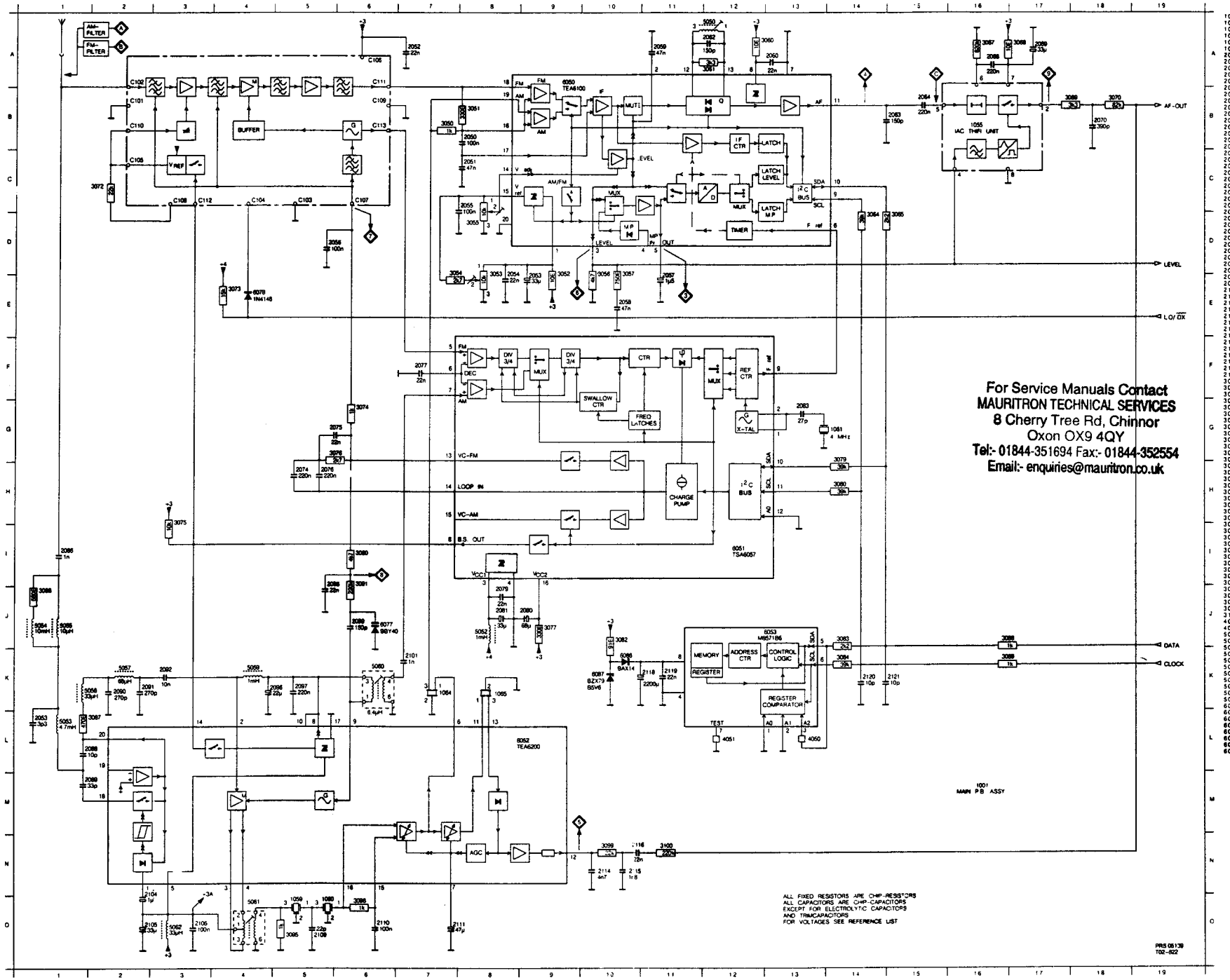
h.

Fig. 1


AM-FILTER
FM-FILTER
BUFFER
V REF
6050 TEA6100
FM
AM
MUTE
AF
AF-OUT
IF CTR
LATCH
LEVEL
LATCH LEVEL
LATCH M.P
MUX
I2C BUS
SDA
SCL
TIMER
M.P
AM/FM
VAUX
F ref
IAC THIR UNIT
LEVEL
LO/ $\overline{DX}$
DIV 3/4
DEC
SWALLOW CTR
FREQ LATCHES
CTR
REF CTR
X-TAL
VC-FM
LOOP IN
VC-AM
B.S. OUT
CHARGE PUMP
6051 TSA6057
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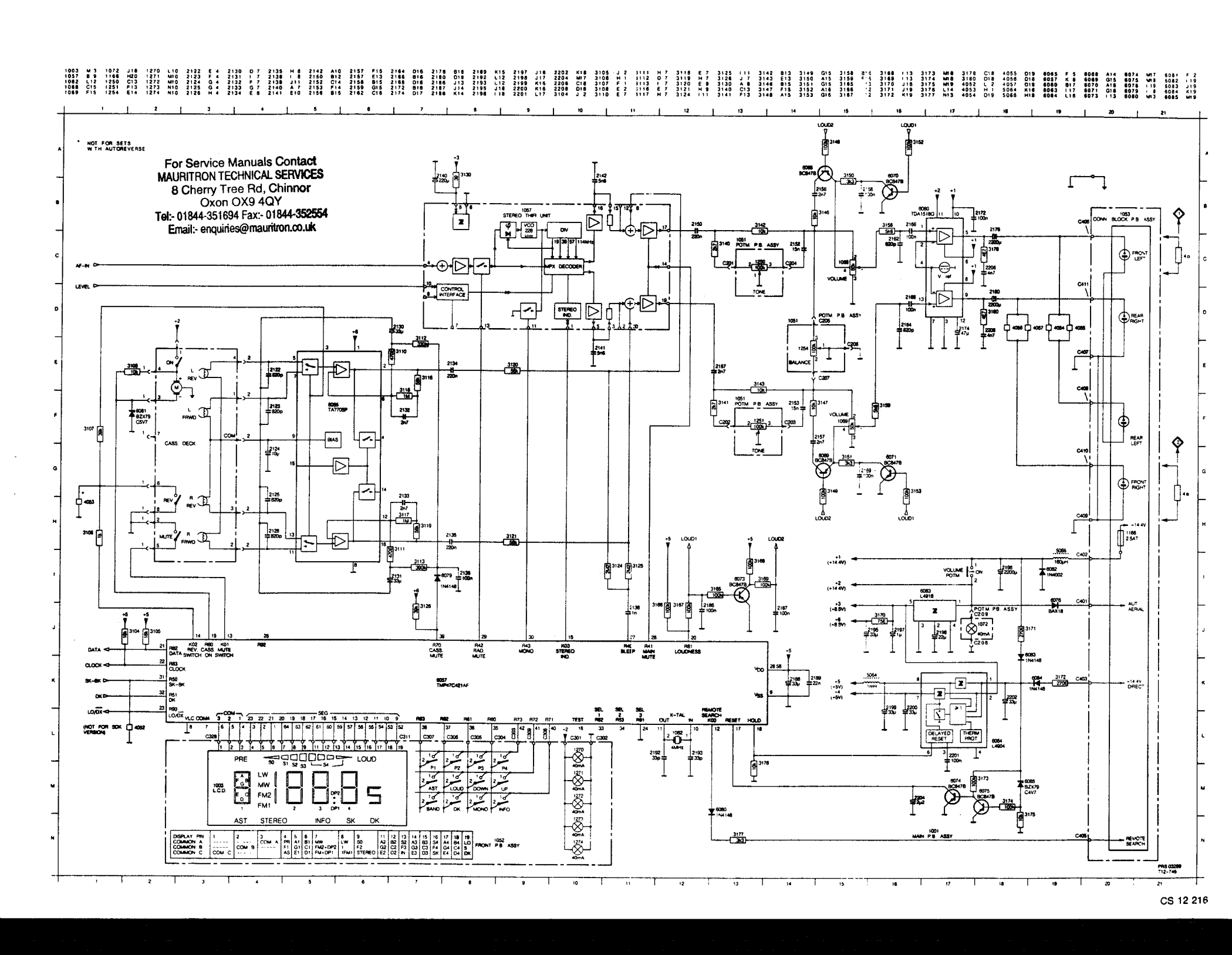
Email:- enquiries@mauritron.co.uk
6053 M65718S
MEMORY REGISTER
ADDRESS CTR
CONTROL LOGIC
REGISTER COMPARATOR
TEST
A0
A1
A2
DATA
CLOCK
6052 TEA5200
AGC
1001 MAIN PB ASSY
ALL FIXED RESISTORS ARE CHIP-RESISTORS
ALL CAPACITORS ARE CHIP-CAPACITORS
EXCEPT FOR ELECTROLYTIC CAPACITORS
AND TRIMCAPACITORS
FOR VOLTAGES SEE REFERENCE LIST
PRS 05139
T02-822

CS 18 607


* NOT FOR SETS WITH AUTOREVERSE
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8 Cherry Tree Rd, Chinnor
Oxon OX9 4QY
Tel:- 01844-351694 Fax:- 01844-352554
Email:- enquiries@mauritron.co.uk
AF-IN
LEVEL
STEREO THFR UNIT
MPX DECODER
CONTROL INTERFACE
STEREO IND.
TONE
VOLUME
BALANCE
CASS. DECK
BIAS
LOUD1
LOUD2
FRONT LEFT
REAR RIGHT
REAR LEFT
FRONT RIGHT
AUT AERIAL
DIRECT
REMOTE SEARCH
DATA
CLOCK
SK-BK
DK
LO/DX
PRE
LOUD
LW
MW
FM2
FM1
AST
STEREO
INFO
SK
DK
MAIN P.B. ASSY
FRONT P.B. ASSY
CS 12 216

...V any position
...V FM position FM
...V AM position AM
...V > position play forward
...V < position play reverse
...V eject position eject

1050 FM TUNER

C101= GND.
C102= –
C103= GND.
C104= 0.0V
C105= 1.7V
C106= 8.5V
C107= VC-FM MP-7
C108= 1.4V
C109= GND.
C110= 1.7V
C111= 2.9V
C112= 0.2V
C113= 1.8V

1055 IAC-THIFI

1 = N.C
2 = 2.5V MP-9
3 = N.C
4 = 4.3V signal
0.0V no signal
5 = 4.3V
6 = 8.1V
7 = 8.4V
8 = GND.

1057 ST.DEC.THIFI

1 = 5.0V mono
0.2V stereo
2 = N.C
3 = 3.5V
4 = 2.5V
5 = 3.5V
6 = GND.
7 = N.C
8 = 7.3V
9 = N.C
0= 4.3V signal
0.0V no signal
11= 5.0V mono
0.0V stereo
12= N.C
13= 5.0V muted
0.0V signal
14= 0.0V muted
5.0V signal
15= 3.5V
16= 3.5V
17= 3.5V
18= 3.5V
19= 3.5V
20= 3.5V

050 TEA6100

1 = 8.4V
2 = 0.8V
3 = 4.3V signal
0.0V no signal
4 = N.C
5 = MP-3
6 = 40 kHz
7 = GND.
8 = 8.4V
9 = 4.8V(SDA)
0= 4.8V(SCL)
11= 4.2V MP-4
12= 4.6V
13= 4.6V
14= 2.5V
15= 4.4V
16= 2.9V
17= 2.9V
18= 2.9V
19= 2.9V
20= GND.

051 TSA6057

= 4 MHz
= 4 MHz
= 4.7V
= GND.
= 1.8V
= 1.8V
= 1.8V
= ≤0.8V FM
8.3V AM
9 = 40 kHz ± 0.6Hz
10= 4.8V(SDA)
11= 4.8V(SCL)
12= GND.
13= VC-FM 1.3V-5.8V
(87.5MHz-108MHz)
14= 2.0V
15= N.C
16= 8.3V

6052 TEA6200

1 = 6.8V AM
2 = 4.0V AM
3 = 8.5V
4 = 8.5V
5 = 8.5V
6 = 8.5V
7 = 0.7V
8 = 4.0V AM
9 = 4.0V AM
10= 4.0V AM
11= 6.8V AM
12= 1.3V MP-5
13= 4.8V AM
14= 8.5V AM
15= 4.8V AM
16= 4.8V AM
17= GND.
18= 1.0V AM
19= 1.3V AM
20= 3.3V AM

6053 M8571B6

1 = GND.
2 = GND.
3 = GND.
4 = GND.
5 = 4.8V(SDA)
6 = 4.8V(SCL)
7 = GND.
8 = 5.0V

6055 TA7705P

1 = 8.5V
2 = 3.3V; 0.0V eject
3 = 0.0V >, eject
5.0V <
4 = N.C
5 = 2.9V
6 = 2.9V
7 = 2.9V
8 = GND.
9 = 2.9V
10= N.C
11= 2.9V
12= 2.9V
13= 2.9V
14= N.C
15= N.C
16= 3.3V

6060 TDA1518Q

1 = 2.2V
2 = 2.2V
3 = GND.
4 = 2.2V
5 = 6.6V
6 = 14.4V
7 = GND.
8 = 14.4V
9 = 6.6V
10= 14.4V
11= 14.4V
12= 6.6V
13= 2.2V

6063 L4918

1 = 14.4V
2 = 2.6V
3 = GND.
4 = GND.
5 = 8.5V

6064 L4904

1 = 12.7V
2 = 8.5V
3 = 5.6V
4 = GND.
5 = N.C
6 = 4.2V
7 = 5.0V
8 = 5.0V

6068/6069

e = 0.1V loudn. on
b = 0.7V loudn. on
c = 0.1V loudn. on

6070/6071

e = GND.
b = 0.6V loudn. off
0.0V loudn. on
c = 0.0V loudn. off
0.1V loudn. on

6073

e = GND.
b = 0.6V loudn. off
0.0V loudn. on
c = 0.0V loudn. off
3.3V loudn. on

6074

e = GND.
b = 0.0V
c = 5.0V

6075

e = GND.
b = 0.7V
c = 0.0V

For adjusting and checking see general procedures

Adjustment	SK	⊛—	◇	▭	∅	📻
Qudrature detector	FM	93 MHz, 10 µV	Ⓑ	▭	5050	via 100 kΩ: 11-15 IC6050 ⩽ 100 mV DC
α-3dB	FM	93 MHz, 1 mV △f = 22.5 kHz f mod = 1 kHz	Ⓑ	▭	◿	① 0dB (775 mV)
		93 MHz, 15 µV △f = 22.5 kHz f mod = 1 kHz	Ⓑ	▭	3055	① -3dB
AM-search level	MW	990 kHz, 70 µV	Ⓐ	▭	3053	③ 1.75 V DC

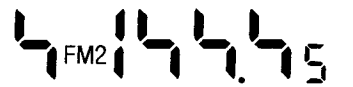
a.

b.

c.

d.

e.



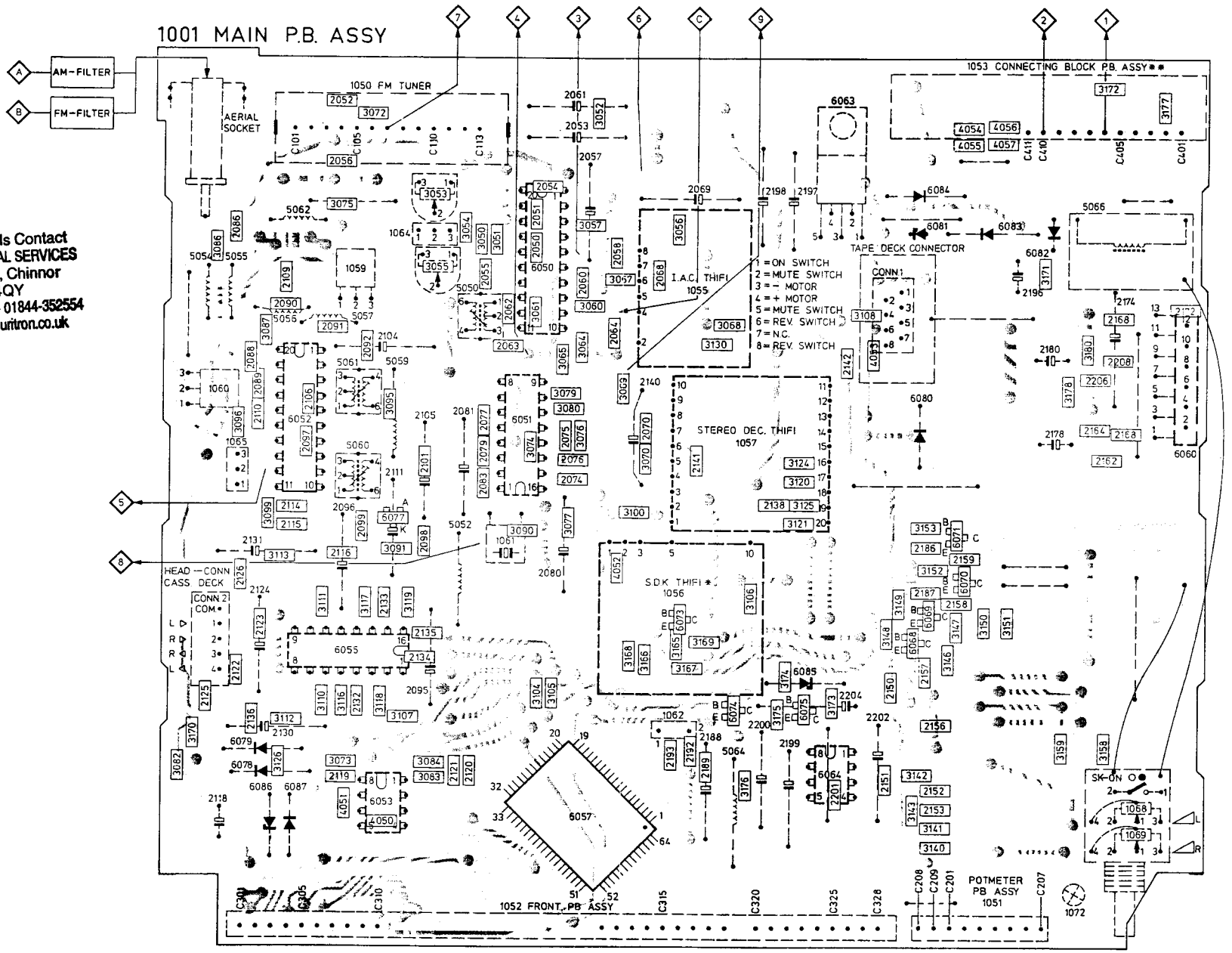
f.

g.

h.

Fig. 1

For Service Manuals Contact
MAURITRON TECHNICAL SERVICES
8 Cherry Tree Rd, Chinnor
Oxon OX9 4QY
Tel:- 01844-351694 Fax:- 01844-352554
Email:- enquiries@mauritron.co.uk

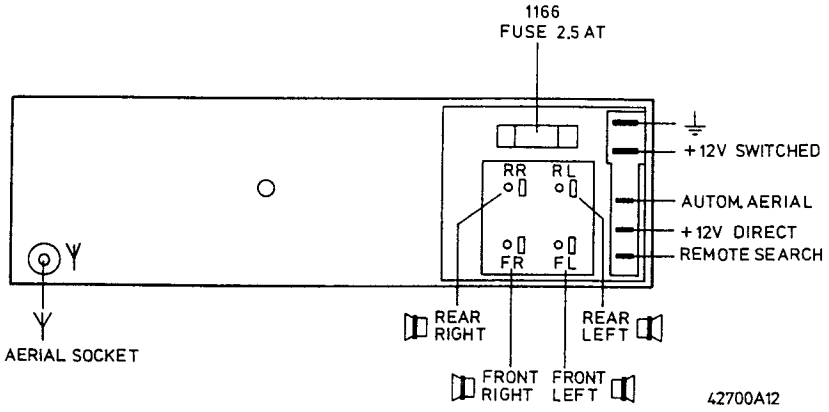


2... CHIP CAPACITOR
3... CHIP RESISTOR
4... CHIP JUMPER
6... CHIP TRANSISTER

1056 FOR SDK VERSION ONLY
4052 NOT FOR SDK VERSION
4053 NOT FOR AUTO REVERSE VERSION

** C 401 = REMOTE SEARCH
C 402 = +12 V SWITCHED
C 403 = +12 V DIRECT
C 404 = N.C.
C 405 = AUTO AERIAL

C 406 = +F.L.
C 407 = -L.
C 408 = +R.L.
C 409 = -R.
C 410 = +F.R.
C 411 = -R.R.



TECHNICAL DATA

General

Power supply	: 14.4V DC
Dimensions(wxhxd)	: 180x51x150 mm
Remote control unit	: 22EN9875

Radio

LW	: 144-288 kHz
MW	: 522-1611 kHz
FM	: 87.5-108 MHz
IF-AM	: 10.7 MHz
IF-FM	: 10.7 MHz
Sensitivity 26 dB S/R	: 160 µV (LW)
	: 110 µV (MW)
	: 4 µV (FM)
Limitation α-3dB	: 15 µV
10 dB crosstalk	: 150 µV

Cassette player

Number of tracks	: 2x2
Tape speed	: 4.76 cm/sec
Wow & Flutter	: ⩾ 0.35 %
Crosstalk	: ⩽ 30 dB

Amplifier

Output power (D ⩽ 10%)	: 2x5.2W ± 1 dB/4Ω
Loudness	: 7 dB at 100 Hz
	6 dB at 10 kHz
Tone control	: -9 dB at 100 Hz
	: -14dB at 10 kHz

SERVICING HINTS

SERVICE TEST PROGRAMME

The µC test programme can be called without first entering the security code.

µC test

This test is called by turning the set on **while** keeping the **P1** and **P2** keys depressed.
Besides the RAM, a great number of µC instructions are tested. If no faults occur, a special pattern will be displayed. (See fig. 1f)
The test can be stopped by turning the set off.

Display test

The display test is called by turning the set on **while** keeping the **P1** and **P3** keys depressed.
A number of easily recognizable patterns are then displayed in succession. (See figs. 1a to 1h)
If you want to make one of the patterns visible for a longer time, you only have to keep the P1 key pressed for the required time.

SECURITY CODE

General

To reduce the risk of theft, this car radio has a built-in electronic lock. The security code has been entered in the factory and cannot be changed by the customer.
The security code consists of four figures varying between "0000" and "9999". The figures are selected by pressing the UP and DOWN keys and are entered by pressing the P1 key. If you enter a wrong code, you will hear an error bleep and after 1 minute you will be given a new opportunity to enter the right code. Each time a wrong code is entered, the waiting time is doubled, so 1, 2, 4, 8 etc. with a maximum of 32 minutes.

Note: If the set is presented for repair with the security code switched on, and the customer has not stated the right code, the set will not be able to function.
Replacing the eeprom by a "non-coded" eeprom and/or replacing the microprocessor will not help in that case.

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Working

ACTIVATING THE SECURITY CODE

Proceed as follows:

Switch the set on **while** pressing the **UP** key.

Now you hear a two-tone beep and the protection is activated.

The car radio will signal that the code has been activated by briefly showing in the display the character '-C-' at the moment of switching on the radio.

ENTRY OF THE CODE

Example: Suppose the code is 4567.

Action	**Display shows**	**Note**
- Switch on	-C-	
- Press P1	-	
- Select UP/DOWN "4"	4	first figure
- Press P1	4-	
- Select UP/DOWN "5"	45	second figure
- Press P1	45-	
- Select UP/DOWN "6"	456	third figure
- Press P1	456-	
- Select UP/DOWN "7"	4567	fourth figure
- Press P1	....	confirmation tone

The radio is now on and you can operate the cassette player.
Now that the security code is active, the code should be entered again each time the supply voltage has been interrupted.
To indicate that the security code is activated, the display briefly shows the character "C" each time the set is turned on.

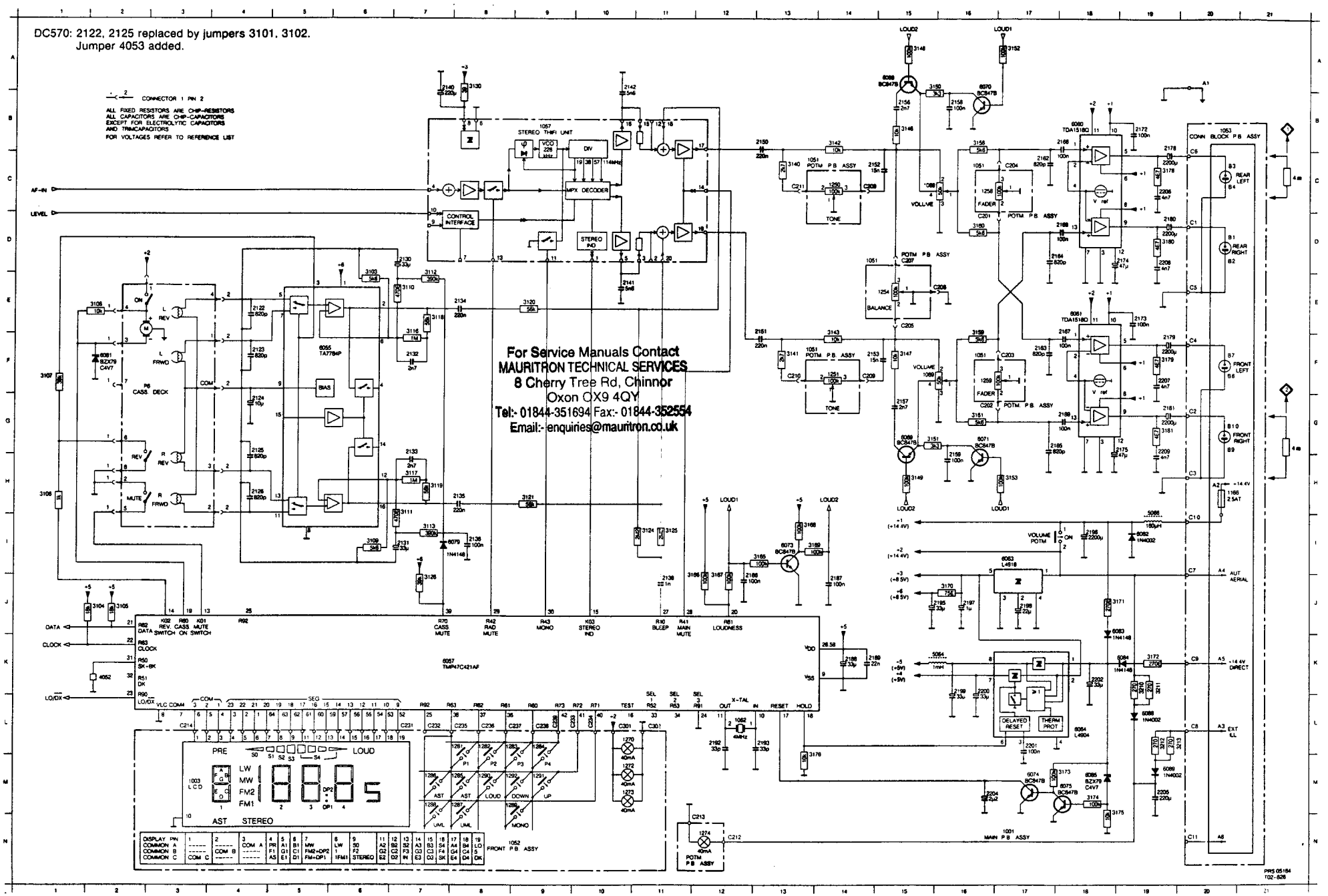
SWITCHING THE CODE OFF

Switch the set on **while** pressing the **UP** key. The display shows the indication "-C-". Enter the right code in the way described above. Two two-tone squeaks confirm that the security code is switched off.

ESD

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD).
Careless handling during repair can reduce service life drastically. When repairing, make sure that you are connected to the same potential as the mass of the set via a wrist wrap with resistance.
Keep components and tools also at this potential.

DC570: 2122, 2125 replaced by jumpers 3101, 3102.
Jumper 4053 added.



checking and adjusting see general procedures

Check	SK	⊛—	◇	▭	Setting of controls	▭	⊓
FM-Mute	FM	93 MHz, 1 mV	Ⓑ	▭	◢	①0dB (775 mV)	
		no signal				-30dB≤①≤-40dB	
26dB-SNR	FM	93 MHz, 4 µV △f = 22.5 kHz f mod = 1 kHz	Ⓑ	▭	◢	① 0dB (775 mV)	
		93MHz, 4µV without mod.				① ≥ 26dB	
	MW	990 kHz, 110 µV 1 kHz, 30% AM	Ⓐ	▭	◢	① 0dB (775 mV)	
		990kHz, 110 µV without mod.				① ≥ 26dB	
Demodulated FM-levels	FM	93MHz. 1mV △f = 22.5 kHz f mod = 1 kHz	Ⓑ	▭		④ 200 mV ±1dB	
		93 MHz, 1 mV △f = 6.75 kHz f mod. = 1 kHz				④ 50 mV ± 1dB	
Demodulated FM level	FM	93 MHz, 1 mV △f = 3.75 kHz f mod. = 57 kHz	Ⓑ	▭		④ 20 mV ± 1 dB	
Demodulated AM-level	MW	990 kHz, 1 mV 1kHz, 30% AM	Ⓐ	▭		⑤ 350 mV ± 1dB	
Cross talk	FM	93 MHz, 1 mV stereo signal	Ⓑ	▭	◢+◣	L ① 0dB (775 mV) R ②	
		93 MHz, 1 mV stereo-R				R② - L ①≥ 21dB	
SDS/10dB Cross talk	FM	93 MHz, 1 mV stereo signal	Ⓑ	▭	◢+◣	L ① 0dB (775 mV) R ②	
		93 MHz, 150 µV stereo-R				R② - L ①= 10dB	
earch level FM	FM	93 MHz, 25µV	Ⓑ	▭		⑥ 2 V-DC	
earch level AM	MW	990 kHz, 70µV	Ⓐ	▭		③ 1.75 V-DC	
VC-FM	FM			87.5 MHz		⑦ ≥ 1.0 V-DC	
				108 MHz		⑦ ≤ 6.0 V-DC	
VC-AM	LW			144 kHz		⑧ ≥ 0.8 V-DC	
	MW			1611 kHz		⑧ ≤ 6.0 V-DC	
I.A.C.	FM	Vp, τ, T τ = 10 µsec T = 300 µsec Vp = 60 mV	Ⓒ				⑨ 25-50 µs

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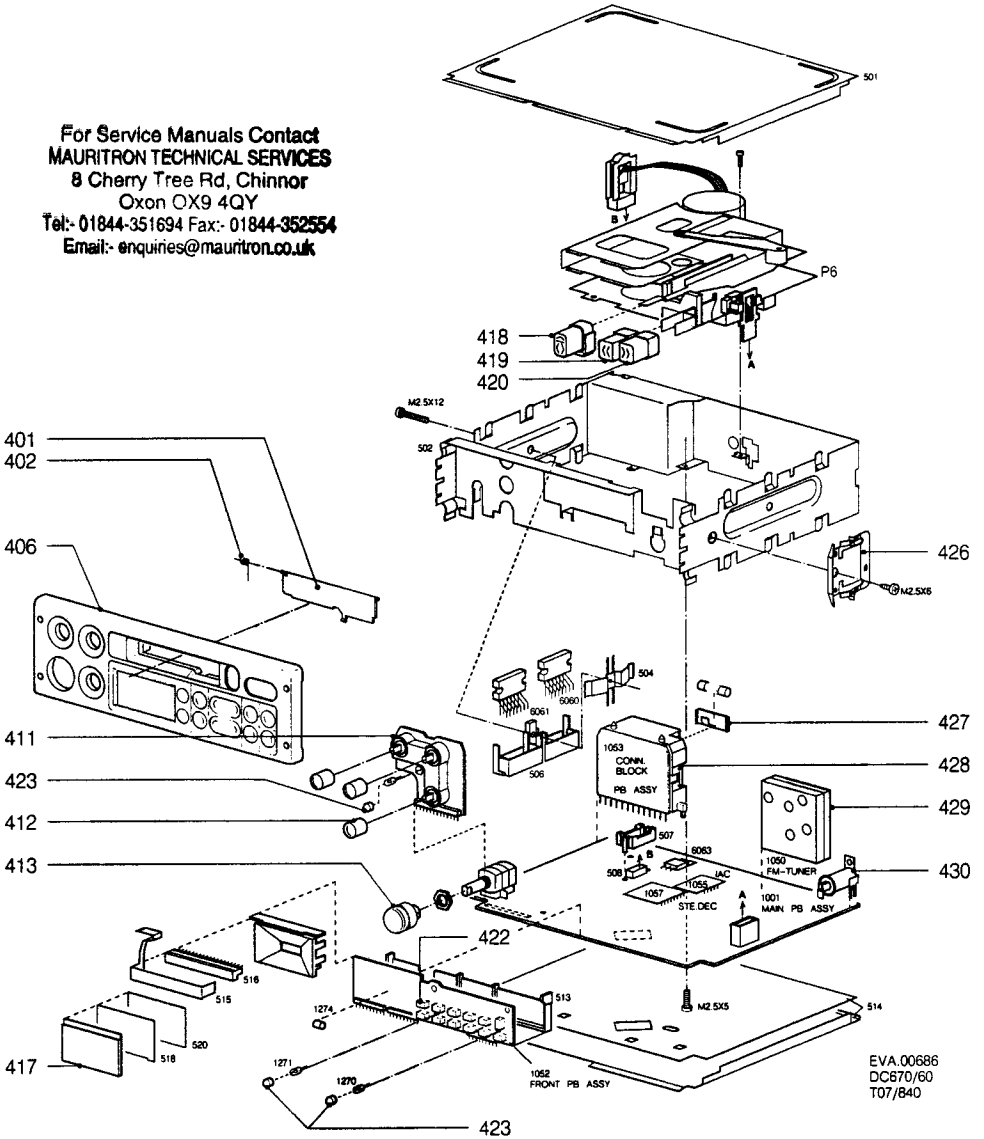


401	4822 443 62676 (570)	418	4822 410 20902 (570)	429	4822 210 10305
401	4822 443 62271	418	4822 410 26735 (670)	430	4822 267 30883
402	4822 492 42221	419	4822 318 40380 (570)	* Incl. items 401, 402	
406*	4822 423 50944 (570/60E)	419	4822 410 26738 (670)		
406*	4822 423 50932 (670/60)	420	4822 318 40380 (570)		
406*	4822 423 50939 (670/60E)	420	4822 410 26736 (670)		
411	4822 214 51739	422	4822 276 12469		
412	4822 413 41479	423	4822 134 40921		
413	4822 413 41481	426	4822 492 63822		
417	4822 130 90499	427	4822 256 30338		
		428	4822 267 50859		

- MISCELLANEOUS -

1055	IAC-Thifi	4822 214 51676
1057	STEREO DEC. Thifi	4822 214 51677
1059	Cer.Filter 10.7 MHz	4822 242 72076
1060	Cer.Filter 10.7 MHz	4822 242 72076
1061	Crystal 4 MHz	4822 242 71881
1062	Crystal 4 MHz	4822 242 71882
1064	Cer.Filter 10.7 MHz	4822 242 71883
1065	Cer.Filter 10.7 MHz	4822 242 71883
1068	Potm.Volume 2X50kΩ	4822 101 40145
1166	Fuse 2.5A(T)	4822 253 30026
1250/1251	Potm.Tone 2X100kΩ	4822 102 30462
1254	Potm.Balance 100kΩ	4822 100 20663
	Lamp 14V-40mA	4822 134 40867
	Lamp 14V orange	4822 134 40921

Capacitors

2050	100nF	20%	50V	4822 122 33104
2051	47 nF			4822 122 33211
2055	100nF	20%	50V	4822 122 33104
2056	10 nF			4822 122 31728
2057	47 nF			4822 122 33211
2061	2.2µF		40V	4822 124 20706
2062	150pF			4822 122 33181
2063	270pF			4822 122 33216
2064	220nF	20%	50V	4822 122 32916
2068	220nF	20%	50V	4822 122 32916
2070	390pF	20%	50V	4822 122 33172
2074	220nF	20%	50V	4822 122 32916
2076	220nF	20%	50V	4822 122 32916
2083	27 pF			4822 122 33214
2088	10 pF			4822 122 33212
2089	33 pF	20%	50V	4822 122 33215
2090	270pF	20%	50V	4822 122 33216
2091	270pF	20%	50V	4822 122 33216
2092	10 nF	20%	50V	4822 122 33177
2097	220nF	20%	50V	4822 122 32916
2099	150pF		50V	4822 122 33222
2106	100nF	20%	50V	4822 122 33104
2109	22 pF		50V	4822 122 33213
2110	100nF	20%	50V	4822 122 33104
2114	4.7nF		50V	4822 122 33217
2115	3.3nF		50V	4822 122 33219
2118	2200µF		6.3V	4822 124 41453
2120	10 pF		50V	4822 122 33212
2121	10 pF		50V	4822 122 33212
2122	820pF		50V	4822 122 33218
2123	820pF		50V	4822 122 33218
2125	820pF		50V	4822 122 33218
2126	820pF		50V	4822 122 33218
2132	2.7nF		50V	4822 122 33176
2133	2.7nF		50V	4822 122 33176
2134	220nF	20%	50V	4822 122 32916
2135	220nF	20%	50V	4822 122 32916
2136	100nF	20%	50V	4822 122 33104
2140	220µF		10V	4822 124 22409
2141	5.6nF		50V	4822 122 33221
2142	5.6nF		50V	4822 122 33221
2150	220nF	20%	50V	4822 122 32916
2151	220nF	20%	50V	4822 122 32916
2156	1.8nF		50V	4822 122 33144
2157	1.8nF		50V	4822 122 33144
2158	100nF		50V	4822 122 33209
2162	820pF		50V	4822 122 33218
2164	820pF		50V	4822 122 33218
2166	100nF	20%	50V	4822 122 33104
2168	100nF	20%	50V	4822 122 33104
2172	100nF	20%	50V	4822 122 33104
2178	2200µF		10V	4822 124 41452
2180	2200µF		10V	4822 124 41452
2186	100nF	20%	50V	4822 122 33104
2187	100nF	20%	50V	4822 122 33104
2192	33 pF		50V	4822 122 33215
2193	33 pF		50V	4822 122 33215
2196	2200µF		16V	4822 124 22412
2201	100pF	20%	50V	4822 122 33104
2204	2.2µF		40V	4822 124 20706
2206	4.7nF		50V	4822 122 33217
2208	4.7nF		50V	4822 122 33217

Resistors

3050	1k	4822 111 91516
3051	330Ω	4822 111 91501
3052	10E	4822 111 91519
3053	10k Trimpotmeter	4822 100 20166
3054	2k7	4822 111 91525
3055	10k Trimpotmeter	4822 100 20166
3056	4k7	4822 111 91532
3057	750E	4822 111 91505
3060	10E	4822 111 91519
3061	3k3	4822 111 91526
3064	39k	4822 111 91528
3065	2k2	4822 111 91522
3067	620k	4822 111 91503
3068	10E	4822 111 91519
3069	3k9	4822 111 91527
3070	8k2	4822 111 91507
3072	22k	4822 111 91523
3073	15k	4822 111 91498
3074	1k	4822 111 91516
3075	10k	4822 111 91517
3076	2k7	4822 111 91525
3077	330E	4822 111 91501
3079	39k	4822 111 91528
3080	39k	4822 111 91528
3082	91E	4822 111 91508
3083	2k2	4822 111 91522
3084	39k	4822 111 91528
3086	560E	4822 111 91533
3087	470E	4822 111 91531
3090	4k7	4822 111 91532
3091	220k	4822 111 91524
3095	1k	4822 111 91516
3096	1k	4822 111 91516
3099	22k	4822 111 91523
3100	220k	4822 111 91524
3104	18k	4822 111 91521
3105	18k	4822 111 91521
3106	1k	4822 111 91516
3107	39k	4822 111 91528
3108	10k	4822 111 91517
3110	470E	4822 111 91531
3111	470E	4822 111 91531
3112	390k	4822 111 91529
3113	390k	4822 111 91529
3116	1M	4822 111 91509
3117	1M	4822 111 91509
3118	56k	4822 111 91535
3119	56k	4822 111 91535
3120	56k	4822 111 91535
3121	56k	4822 111 91535
3124	2M2	4822 111 91511
3125	2M2	4822 111 91511
3126	39k	4822 111 91528
3130	390k	4822 111 91502
3140	2K7	4822 111 91525
3141	2k7	4822 111 91525
3142	10k	4822 111 91517
3143	10k	4822 111 91517
3146	15k	4822 111 91498
3147	15k	4822 111 91498
3148	100k	4822 111 91518
3149	100k	4822 111 91518
3150	3k3	4822 111 91526
3151	3k3	4822 111 91526
3152	100k	4822 111 91518
3153	100k	4822 111 91518
3158	5k6	4822 111 91534
3159	5k6	4822 111 91534
3160	5k6	4822 111 91534
3161	5k6	4822 111 91534
3165	100k	4822 111 91518
3166	100k	4822 111 91518
3167	100k	4822 111 91518
3168	100k	4822 111 91518
3169	100k	4822 111 91518
3170	75E	4822 111 91506
3171	270E	4822 111 91499
3172	270E	4822 111 91499
3173	100k	4822 111 91518
3174	100k	4822 111 91518
3175	10k	4822 111 91517
3176	10k	4822 111 91517
3177	680E	4822 111 91504
3178	4E7	4822 116 80464
3179	4E7	4822 116 80464
3180	4E7	4822 116 80464
3204	22k	4822 111 91523
4050	0E	4822 111 91536
4051	0E	4822 111 91536
4052	0E	4822 111 91536

Coils

5050	4822 156 11081
5052	4822 157 50975
5054	4822 152 20677
5055	4822 152 20677
5056	4822 152 20677
5057	4822 152 20679
5059	4822 157 50975
5060	4822 152 20682
5061	4822 152 20683
5062	4822 152 20678
5064	4822 157 50975
5066	4822 152 20681

Diodes

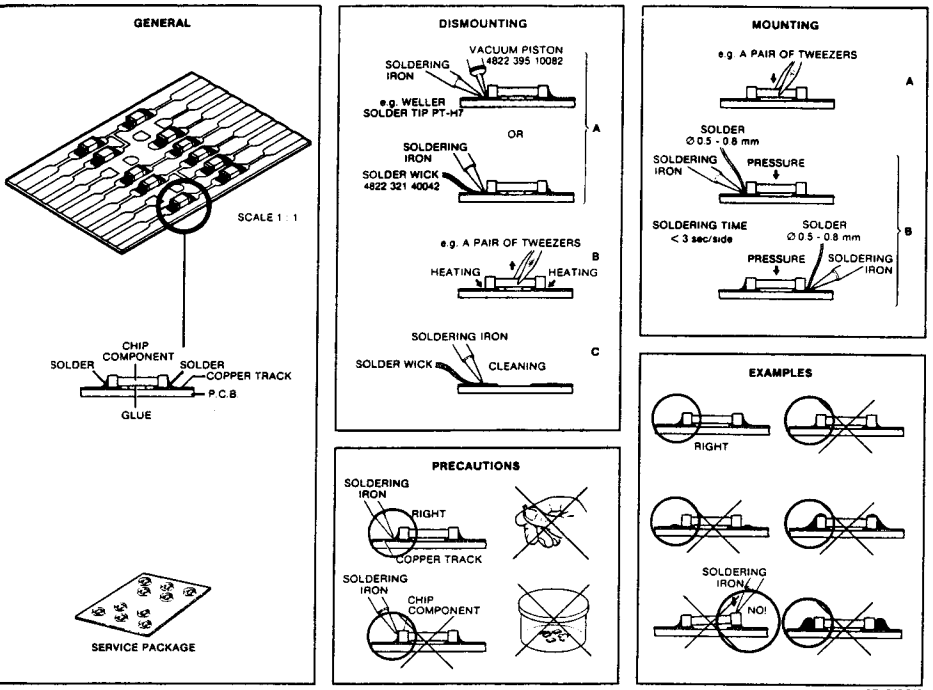
BAX14	4822 130 34193
BAX18	4822 130 34121
BBY40	5322 130 80119
BZX79/B5V1	4822 130 34233
BZX79/B5V6	4822 130 34173
BZX79/C4V7	4822 130 34174
1N4002	5322 130 30684
1N4148	4822 130 30621

Transistors

BC847B Chip Transistor	4822 130 60511

ICs

6050	TEA6100N2	4822 209 72251
6051	TSA6057	4822 209 72248
6052	TEA6200	4822 209 72247
6053	X2402I	4822 209 72802
6055	TA7784P	4822 209 71871
6057	TMP47C421AF	4822 209 72254
6060	TDA1518Q	4822 209 72249
6063	L4918	4822 209 72253
6064	L4904	4822 209 72252



27 012C12

	Carbon film 0.2 W	70°C	5%
	Carbon film 0.33 W	70°C	5%
	Metal film 0.33 W	70°C	5%
	Carbon film 0.5 W	70°C	5%
	Carbon film 0.67 W	70°C	5%
	Carbon film 1.15 W	70°C	5%

© Chip component

	Ceramic plate Tuning ⩽ 120 pF NP.0	2%
	Others	−20/+80%
	Polyester flat foil	10%
	Metalized polyester flat film	10%
	Polyester flat foil small size (Mylar)	10%
	Polysterene film/foil	1%
	Tubular ceramic	
	Miniature single	
	Subminiature tantalum	± 20%

*a	= 2,5 V
b	= 4 V
c	= 6,3 V
d	= 10 V
e	= 16 V
f	= 25 V
g	= 40 V
h	= 63 V
j	= 100 V
l	= 125 V
m	= 150 V
n	= 160 V
q	= 200 V
r	= 250 V
s	= 300 V
t	= 350 V
u	= 400 V
v	= 500 V
w	= 630 V
x	= 1000 V
A	= 1,6 V
B	= 6 V
C	= 12 V
D	= 15 V
E	= 20 V
F	= 35 V
G	= 50 V
H	= 75 V
I	= 80 V

27 037A/C

© Chips 50 V NP0 S1206		
1 pF	5%	4822 122 32479
1,2 pF	5%	4822 122 33013
1,5 pF	5%	4822 122 31792
1,8 pF	5%	4822 122 32087
2,2 pF	5%	4822 122 32425
3,3 pF	5%	4822 122 32079
3,9 pF	5%	4822 122 32081
4,7 pF	5%	4822 122 32082
5,6 pF	5%	4822 122 32506
6,8 pF	5%	4822 122 32507
8,2 pF	5%	4822 122 32083
10 pF	5%	4822 122 31971
12 pF	5%	4822 122 32139
15 pF	5%	4822 122 32504
18 pF	5%	4822 122 31769
22 pF	10%	4822 122 31837
27 pF	5%	4822 122 31966
33 pF	5%	4822 122 31756
39 pF	5%	4822 122 31972
47 pF	5%	4822 122 31772
56 pF	5%	4822 122 31774
68 pF	5%	4822 122 31961
82 pF	10%	4822 122 31839
100 pF	5%	4822 122 31765
120 pF	5%	4822 122 31766
150 pF	5%	4822 122 31767
180 pF	2%	4822 122 31794
220 pF	5%	4822 122 31965
270 pF	5%	4822 122 32142
330 pF	10%	4822 122 31642
390 pF	5%	4822 122 31771
470 pF	5%	4822 122 31727
560 pF	5%	4822 122 31773
680 pF	5%	4822 122 31775
820 pF	5%	4822 122 31974
1 nF	10%	5322 122 31647
1,2 nF	5%	4822 122 31807
1,5 nF	10%	4822 122 31781
1,8 nF	10%	4822 122 32153
2,2 nF	10%	4822 122 31644
2,7 nF	10%	4822 122 31783
3,3 nF	10%	4822 122 31969
3,9 nF	10%	4822 122 32566
4,7 nF	10%	4822 122 31784
5,6 nF	10%	4822 122 31916
6,8 nF	10%	4822 122 31976
10 nF	10%	4822 122 31728
12 nF	10%	5322 122 31648
15 nF	10%	4822 122 31782
18 nF	10%	4822 122 31759
22 nF	10%	4822 122 31797
27 nF	10%	4822 122 32541
33 nF	10%	4822 122 31981
47 nF	10%	4822 122 32542
56 nF	10%	4822 122 32183
100 nF	10%	4822 122 31947
180 nF	10%	4822 122 32915
220 nF	20%	4822 122 32715

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0 E	jumper	4822 111 90163
1 E	5%	4822 111 90184
1,1 E	5%	4822 111 90377
1,2 E	5%	4822 111 90378
1,3 E	5%	4822 111 90379
1,5 E	5%	4822 111 90381
1,6 E	5%	4822 111 90382
1,8 E	5%	4822 111 90383
2 E	5%	4822 111 90384
2,2 E	5%	5322 111 90104
2,4 E	5%	4822 111 90385
2,7 E	5%	4822 111 90386
3 E	5%	4822 111 90387
3,3 E	5%	4822 111 90388
3,6 E	5%	4822 111 90389
3,9 E	5%	4822 111 90391
4,3 E	5%	4822 111 90392

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4,7 E	5%	5322 111 90376
5,1 E	5%	4822 111 90393
5,6 E	5%	4822 111 90394
6,2 E	5%	4822 111 90395
6,8 E	5%	4822 111 90254
7,5 E	5%	4822 111 90396
8,2 E	5%	4822 111 90397
9,1 E	5%	4822 111 90398
10 E	2%	5322 111 90095
11 E	2%	4822 111 90338
12 E	2%	4822 111 90341
13 E	2%	4822 111 90343
15 E	2%	4822 111 90344
16 E	2%	4822 111 90347
18 E	2%	5322 111 90139
20 E	2%	4822 111 90352
22 E	2%	4822 111 90186
24 E	2%	4822 111 90355
27 E	2%	5322 111 90105
30 E	2%	4822 111 90356
33 E	2%	4822 111 90357
36 E	2%	4822 111 90359
39 E	2%	4822 111 90361
43 E	2%	5322 116 90125
47 E	2%	4822 111 90217
51 E	2%	4822 111 90365
56 E	2%	4822 111 90239
62 E	2%	4822 111 90367
68 E	2%	4822 111 90203
75 E	2%	4822 111 90371
82 E	2%	4822 111 90124
91 E	2%	4822 111 90375
100 E	2%	5322 111 90091
110 E	2%	4822 111 90335
120 E	2%	4822 111 90339
130 E	2%	4822 111 90164
150 E	2%	5322 111 90098
160 E	2%	4822 111 90345
180 E	2%	5322 111 90242
200 E	2%	4822 111 90348
220 E	2%	4822 111 90178
240 E	2%	4822 111 90353
270 E	2%	4822 111 90154
300 E	2%	4822 111 90156
330 E	2%	5322 111 90106
360 E	1%	4822 111 90288
360 E	2%	4822 111 90358
390 E	2%	5322 111 90138
430 E	2%	4822 111 90362
470 E	2%	5322 111 90109
510 E	2%	4822 111 90245
560 E	2%	5322 111 90113
620 E	2%	4822 111 90366
680 E	2%	4822 111 90162
750 E	2%	5322 111 90306
820 E	2%	4822 111 90171
910 E	2%	4822 111 90372
1 k	2%	5322 111 90092
1,1 k	2%	4822 111 90336
1,2 k	2%	5322 111 90096
1,3 k	2%	4822 111 90244
1,5 k	2%	4822 111 90151
1,6 k	2%	5322 111 90265
1,8 k	2%	5322 111 90101
2 k	2%	4822 111 90165
2,2 k	2%	4822 111 90248
2,4 k	2%	4822 111 90289
2,7 k	2%	4822 111 90569
3 k	2%	4822 111 90198
3,3 k	2%	4822 111 90157
3,6 k	2%	5322 111 90107
3,9 k	2%	4822 111 90571
4,3 k	2%	4822 111 90167
4,7 k	2%	5322 111 90111
5,1 k	2%	5322 111 90268
5,6 k	2%	4822 111 90572
6,2 k	2%	4822 111 90545

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6,8 k	2%	4822 111 90544
7,5 k	2%	4822 111 90276
8,2 k	2%	5322 111 90118
9,1 k	2%	4822 111 90373
10 k	2%	4822 111 90249
11 k	2%	4822 111 90337
12 k	2%	4822 111 90253
13 k	2%	4822 111 90509
15 k	2%	4822 111 90196
16 k	2%	4822 111 90346
18 k	2%	4822 111 90238
20 k	2%	4822 111 90349
22 k	2%	4822 111 90251
24 k	2%	4822 111 90512
27 k	2%	4822 111 90542
30 k	2%	4822 111 90216
33 k	2%	5322 111 90267
36 k	2%	4822 111 90514
39 k	2%	5322 111 90108
43 k	2%	4822 111 90363
47 k	2%	4822 111 90543
51 k	2%	5322 111 90274
56 k	2%	4822 111 90573
62 k	2%	5322 111 90275
68 k	2%	4822 111 90202
75 k	2%	4822 111 90574
82 k	2%	4822 111 90575
91 k	2%	5322 111 90277
100 k	2%	4822 111 90214
110 k	2%	5322 111 90269
120 k	2%	4822 111 90568
130 k	2%	4822 111 90511
150 k	2%	5322 111 90099
160 k	2%	5322 111 90264
180 k	2%	4822 111 90565
200 k	2%	4822 111 90351
220 k	2%	4822 111 90197
240 k	2%	4822 111 90215
270 k	2%	4822 111 90302
300 k	2%	5322 111 90266
330 k	2%	4822 111 90513
360 k	2%	4822 111 90515
390 k	2%	4822 111 90182
430 k	2%	4822 111 90168
470 k	2%	4822 111 90161
510 k	2%	4822 111 90364
560 k	2%	4822 111 90169
620 k	2%	4822 111 90213
680 k	2%	4822 111 90368
750 k	2%	4822 111 90369
820 k	2%	4822 111 90205
910 k	2%	4822 111 90374
1 M	2%	4822 111 90252
1,1 M	5%	4822 111 90408
1,2 M	5%	4822 111 90409
1,3 M	5%	4822 111 90411
1,5 M	5%	4822 111 90412
1,6 M	5%	4822 111 90413
1,8 M	5%	4822 111 90414
2 M	5%	4822 111 90415
2,2 M	5%	4822 111 90185
2,4 M	5%	4822 111 90416
2,7 M	5%	4822 111 90417
3 M	5%	4822 111 90418
3,3 M	5%	4822 111 90191
3,6 M	5%	4822 111 90419
3,9 M	5%	4822 111 90421
4,3 M	5%	4822 111 90422
4,7 M	5%	4822 111 90423
5,1 M	5%	4822 111 90424
5,6 M	5%	4822 111 90425
6,2 M	5%	4822 111 90426
6,8 M	5%	4822 111 90235
7,5 M	5%	4822 111 90427
8,2 M	5%	4822 111 90237
9,1 M	5%	4822 111 90428
10M	5%	5322 111 91141